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DEPARTMENT OF THE ARMY FIELD MANUAL

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ARMY AIR TRANSPORT OPERATIONS



HEADQUARTERS, DEPARTMENT OF THE ARMY
APRIL 1967



FOREWORD

This manual provides interim guidance to commanders, staff officers, and other personnel concerned with Army air transport support under the TASTA-70 (The Administrative Support, Theater Army 1965-1970) concept of organization and operation. This information can be utilized to facilitate reorganization under the TASTA concept. Firm information on the organizational structure and composition of units will be as contained in TOE's when published. Although the basic TASTA-70 study has been approved by Department of the Army, detailed doctrine contained in this test field manual is under continuing development and review.



FIELD MANUAL

No. 55-46-1 (TEST)

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 7 April 1967

ARMY AIR TRANSPORT OPERATIONS

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CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Purpose and Scope

a. This manual provides guidance for commanders, staff officers, and other interested personnel concerned with the organization and operation of Army aviation units employed as a part of a transportation service in a theater of operations. It includes the following aviation units:

- (1) Headquarters and headquarters company, aviation battalion (TOE 1-256).
- (2) Aviation medium helicopter company (TOE 1-258).
- (3) Aviation heavy helicopter company (TOE 1-259).
- (4) Aviation service support company (TOE 1-407).

b. The manual emphasizes the operations of Army aviation units in providing combat service support air movement and rapid airlift administrative service. It covers organization, command relationships, doctrine on employment, and operational procedures related to Army air transport operations in a communications zone, a field army area, or other geographical location. The manual describes the employment of Army air transport over an air line of communication and in support of both scheduled and unscheduled air movements.

c. The contents of this manual do not change or rescind the role of the U. S. Air Force in providing the Army with air transport as established by current policy and directives (FM 100-27). The provisions of the Army-Air Force agreement of 6 April 1966 concerning the control and employment of certain transport aircraft are included where applicable. See appendix D for contents of the agreement.

d. The material presented herein is applica-

ble without modification to general, limited, and cold war and to internal defense and development operations.

e. Users of this manual are encouraged to submit recommended changes or comments to improve the manual. Comments should be keyed to the specific page, paragraph, and line of the text in which the change is recommended. Reasons should be provided for each comment to insure understanding and complete evaluation. Comments should be forwarded to the Commanding Officer, U. S. Army Combat Developments Command Transportation Agency, Fort Eustis, Virginia 23604.

2. Mission

a. All Army aviation operations are directed towards supporting ground forces in combat. No aviation operation is an end in itself; all must be keyed to provide the best possible support that can be given to the ground forces. In order to provide this support, all commanders and staffs must thoroughly understand the mission and objective and what impact their individual efforts have on the total accomplishment. It is not sufficient for the Army air transport commander to know only the airlift plan. He must also understand the ground combat mission and the overall concept of operations. Likewise, it is not sufficient for the ground commander to concern himself only with the ground plan. Mutual understanding on the part of both commanders and their subordinates is the only way to capitalize on the advantages gained from Army aviation and to derive the necessary tactical flexibility therefrom.

b. Army aviation units referred to in paragraph 1 have the mission of providing air transport of personnel and cargo when em-

ployed as a part of a transportation service in a theater of operations. This mission can be further defined when related to specific aviation operational units. Both an aviation medium and heavy helicopter company provide airlift for combat service support operations. An aviation medium helicopter company provides air movement of cargo and personnel, and an aviation heavy helicopter company is employed primarily to airlift heavy or outsize

cargo loads and to provide supplementary airlift of personnel. These aviation units also have a mission of providing combat support airlift when directed by the appropriate commander. An aviation service support company provides airlift administrative service to a support command and its subordinate units through the employment of both fixed and rotary wing type aircraft.

Section II. EMPLOYMENT CONSIDERATIONS

3. General

The inclusion of Army aircraft in the army-wide transportation service has added a mode that can provide rapid movement of personnel and cargo over broad areas with little regard for surrounding terrain. However, this mode has also introduced certain operational factors that must be recognized and understood in order that adequate support can be safely accomplished. Personnel involved with the utilization and employment of Army aircraft are provided technical guidance and advice from qualified Army aviation personnel. In addition, applicable employment principles and certain operational considerations that affect the capability of this mode of transportation are discussed in this section.

4. Principles of Employment

a. Economy of Utilization. Several factors must be considered in evaluation of this principle. Army transport aircraft must be available to support combat service support, combat support, and administrative service operations. These aircraft are generally in great demand, are relatively expensive to operate, and require more hours of maintenance per operating hour than surface transportation. Transport aircraft should not be employed when another mode of transportation can effectively accomplish the mission. In addition, when a mission is approved, economy can be effected by using the proper type of aircraft. As an example, it is usually more efficient and economical to schedule medium transport helicopters for troop movement and resupply operations and to reserve the heavy lift helicopters for operations

involving movement of heavy items over short distances.

b. Freedom of Utilization. Freedom of utilization permits a commander to employ organic, attached, or supporting Army aviation units in a way which contributes most to the successful accomplishment of his mission. When Army air transport is providing combat service support, it is normal for the appropriate support commander to retain centralized control of these units. However, when Army air transport provides combat support, the units normally are placed under the operational control of the appropriate tactical commander. Freedom to control and utilize certain Army aviation resources places a large responsibility on the ground commander. As aviation resources are limited, the commander must not hoard the capability provided him longer than he needs to perform a particular mission. An air transport unit may very well be required to support several consecutive operations in a single day or even simultaneously. He should use what is needed of what has been allocated but must not hold aircraft merely to be sure that they will be available to meet any contingency. The decision as to when to release supporting air transport units is the responsibility of the senior ground commander under whose control the units are operating.

c. Ready Availability. The ability to respond rapidly to demands for Army air transport increases the value of this mode of transportation to supported commanders. Ready availability is obtained by locating aviation units as close as practical to the supported units. Also, the aircraft's inherent mobility permits support to

be made available to units that are located throughout a wide area. Ready availability is also obtained by intelligent scheduling of operational aircraft and by programming of required maintenance.

5. Operational Considerations

a. Air Density. Unlike surface modes of transportation where the payload of a particular vehicle is relatively fixed, aircraft are affected by air density, which in turn influences the payload that can be carried on a specific mission. Simply stated, any volume of air is less dense than the air on which it rests. Therefore, air is less dense at higher altitudes. At lower levels of altitude, the denser air offers more support (lift) and consequently an aircraft performing in this lower element performs more efficiently. Denser air provides greater lift to an aircraft's wing or rotor blade, thus increasing the weight-lifting performance of the aircraft. Air density is affected by temperature, altitude, and humidity.

- (1) *Temperature.* An increase in temperature causes a decrease in air density. The amount of air that occupies 1 cubic inch at a low temperature will expand and occupy 2 or 3 cubic inches as the temperature goes higher. It is important to recognize that the payload of a particular aircraft can change, depending on the time of day when a flight is scheduled. Usually, early morning temperatures favor operations and noonday heat causes a decrease in the efficiency of the aircraft.
- (2) *Altitude.* An increase in altitude causes a decrease in air density. The thin air at high altitudes causes a lessening of aircraft operating efficiency. This factor is particularly important when operating from landing sites located high above sea level. It is necessary either to decrease the payload or to increase the length of the landing strip.
- (3) *Humidity.* An increase in humidity causes a decrease in air density. Air always contains some moisture in the form of water vapor, but the amount

varies from almost none to 100 percent. This water vapor is known as humidity. As the humidity increases, water particles displace air, causing a decrease in air density and reducing the performance of an aircraft.

b. Distance. The distance to be flown is particularly important when utilizing Army air transport because the allowable cargo load placed aboard each aircraft is computed after the amount of fuel, plus reserve, is determined. Aircraft must carry less fuel with a relative reduction in distance flown when maximum payload is desired, and payload is reduced when maximum distance is the important factor.

c. Aircraft Availability. Aircraft availability is directly influenced by the operational readiness of the air transport units. Proper scheduling of aircraft during operations and efficient maintenance favorably affect aircraft availability. During sustained operations, most reliable and effective airlift is provided when air transport units program a percentage of assigned aircraft as available on a daily basis. This permits required maintenance to be efficiently scheduled. Scheduled maintenance—that is, maintenance which is performed at regular intervals—is accomplished mostly on the basis of hours flown. Nonscheduled maintenance is that which results from unpredicted requirements for repair due to component failure, battle damage, crash damage, or unusual conditions, such as excessive dust. To provide an acceptable percentage of aircraft on a continuous basis, the air transport commander must have some of his aircraft undergoing either scheduled or unscheduled maintenance at any given time. If all aircraft that are operational in a unit are flown every day, scheduled maintenance could not be accomplished and the result would soon be reflected in the daily availability rate. By proper scheduling of both maintenance and operations, the unit can establish and maintain an acceptable daily aircraft availability percentage. This percentage will vary with the type and model of aircraft assigned. Given time and support, air transport units can provide maximum aircraft for individual or special operations. However, such preparation should not be considered as normal, and the extra effort expended to obtain maximum

aircraft decreases the long-range effectiveness of the unit.

d. Weather. Weather conditions influence the operations of Army air transport units. While low ceilings and limited visibility may restrict operations, such conditions may be used to advantage in shielding the aircraft from enemy observation. However, adverse weather generally reduces the efficiency of Army air transport operations. Although Army transport aircraft can operate under instrument flight conditions, commanders should establish weather minimums to preclude scheduling flights that jeopardize the safety of aircraft and personnel. Weather minimums should be established commensurate with the experience of the pilots, type of aircraft employed, urgency of mission, navigational aids available, terrain along the flight route, and time of operation.

e. Enemy Situation. The location and capabilities of enemy forces should be considered before flight routes for Army air transport operations are finalized. Every effort should be made to avoid areas known to contain enemy ground fire, particularly areas containing anti-aircraft weapons. Air transport units should have prearranged evasive-action flight plans in the event that enemy aircraft are encountered.

f. Terrain. Army air transport is less affected by terrain obstacles than are other modes of transportation. However, terrain features must be considered for each operation. Terrain influences the following:

- (1) Location of takeoff and landing sites.
- (2) Flight routes.
- (3) Identification of prominent landmarks for navigational purposes.
- (4) Location of navigational aids.
- (5) Location of emergency landing sites.

g. Crew Member Requirements. The availability of rated crew members has an important effect upon the operational capability of aviation units. Requirements for crew members increase considerably in Army air transport units providing combat service support on a sustained basis. Certain scheduled operations may require that double crews be assigned to a unit to insure completion of a mission. Commanders with assigned or attached aviation units are responsible to insure that crew mem-

bers are assigned to flights in such a manner as to provide adequate safety of operations. Such commanders may also establish local flight time limits for crew members. As a guide, crew members who operate in rotary wing transport aircraft should be limited to 70 hours per month. Crew members who operate in fixed wing aircraft should be limited to a maximum of 80 hours per month. For detailed guidance concerning crew member requirements, see AR 95-17.

h. Vulnerability. Army air transport should be operated and employed in such a manner as to insure a reasonable degree of safety commensurate with the assigned mission. While losses in combat that can be directly attributed to enemy action must be anticipated, such losses can be held to a minimum if sound judgment is used and the aircraft's limitations are recognized. Losses can be reduced by proper coordination and by the use of surprise, maneuver, proper flight techniques, ground security, fire support, and armed aerial escort.

i. Flight Routes. Many demands for the use of available airspace are generated during combat operations. The employment of aircraft of the Army and other services, artillery, drones, and missiles must be coordinated to insure adequate safety, proper identification, and efficiency of operations. Army air transport units are responsible to insure that flight routes are properly coordinated and approved by the appropriate air traffic control facility before commencing air transport operations.

j. Communications and Intelligence.

- (1) Combat support and combat service support/administrative service air transport operations require that adequate communications be established before the beginning of every mission. Voice communication is necessary among the following: Army air transport command and operational units, supported organizations, in-flight aircraft, and takeoff and landing sites. Adequate radio communication is necessary to control the flight, to provide safety, to permit identification, and to be a means of relaying intelligence information. All aircraft crews must know how to enter appropriate radio

nets to make intelligence spot reports to the ground or aviation units in whose area they are operating. If such reporting channels do not exist, the senior aviation command unit is responsible for the establishment of a means for reporting spot intelligence information from aircraft within a specified area of operations.

- (2) Some intelligence information may be of the type that should be passed immediately to higher headquarters. Such information would pass from the aviation crew to an aviation detachment or aviation company headquarters, to the aviation battalion S-2, and then to the appropriate command headquarters. Each aviation battalion and company must remain constantly aware of the fact that every flight in which their personnel participate may produce information that can be converted into vital intelligence. For this reason, all personnel must be instructed to be alert and to actively perform visual reconnaissance of the terrain along each flight route during every operation.
- (3) In order to gain the maximum results, aviation unit intelligence officers should establish an EEI (essential elements of information) file in the unit's flight operations office. This file would be similar to a NOTAM (notice to airmen) file and should be checked by flight crews prior to each flight. It would include the frequencies and call signs of the local spot report intelligence nets. An entry should be placed on all flight plans or other clearance forms used for this purpose indicating that the EEI file has been checked. Where possible, all aviators and crew members should receive an intelligence briefing or debriefing covering these EEI prior to and following each flight.

6. Characteristics of Army Aircraft

a. General.

- (1) Army aircraft are capable of operat-

ing in the environment of the ground soldier. These aircraft are rugged in design, are highly maneuverable, are capable of short takeoff and landing or vertical takeoff and landing (STOL/VTOL), and can be maintained under field conditions. Army fixed wing aircraft can operate from small unimproved fields or airstrips, and helicopters can operate from areas unsuited for fixed wing operations. In order to achieve sustained operations under the conditions mentioned above, simplification of design is emphasized for both operational and maintenance characteristics of Army aircraft. While maintenance requirements vary with each type of aircraft, there are characteristics common to all categories which make for ease of maintenance and servicing. These characteristics include maximum accessibility to engine and other components; sectional or unit assembly replacement of complicated parts; and interchangeability of such items as instruments, generators, and other major components.

- (2) Configuration specifications and performance data for those Army aircraft authorized to the organizations described in this manual are quoted in subsequent paragraphs. This information is given only as a guide for preliminary planning. Actual allowable cargo loads vary greatly because of temperature change, elevation, winds, and other variables existing at the time of operation. It must be understood that these variables preclude the possibility of providing a figure for an allowable cargo load that will remain constant.

b. *Terms.* The following terms are used in those subsequent paragraphs that provide information related to the airlift capability of specific Army transport aircraft:

- (1) *Basic weight.* The empty weight of an aircraft in its basic configuration, including all appointments, integral equipment, instrumentation, and

trapped fuel and oil but excluding passengers, cargo, crew, and usable fuel and oil.

- (2) *Operating weight.* The basic weight, plus those variables which remain substantially constant for a mission. Those items include the crew, crew's baggage, emergency equipment, and oil, but passengers, cargo, and usable fuel are excluded.

- (3) *Gross weight.* The total weight of the loaded aircraft and its contents.
- (4) *Useful load.* The load-carrying capability of an aircraft. It includes the passengers, cargo, crew, and usable fuel and oil required for a mission.
- (5) *Allowable cargo load.* The maximum weight in pounds of personnel and/or cargo which may be flown for a specific mission. The allowable cargo load is also referred to as the payload.

CHAPTER 2

COMMAND AND STAFF RELATIONSHIPS

7. Requirements for Army Air Transport Service

a. The evolution of warfare has generated a need for greater mobility within the Army. Technological advances in weaponry have reduced the time available to a ground commander while broadening his area of operations. It is essential that today's Army be able to move rapidly over large areas and to operate effectively in all types of environmental conditions. Organic mobility within the Army is available to the ground commander in several ways. Army units are authorized organic surface and air vehicles to support mobility requirements directly related to the unit's mission and where the need for such a vehicle is continuous or fixed. Mobility within the Army is also obtained by the employment of certain surface and aviation units that provide transportation on an area basis or in support of a particular military force. These transportation units satisfy a need to move personnel and cargo at speeds and distances commensurate with the requirements of the tactical forces.

b. The complex transportation requirements of the Army in a theater of operations necessitate that a transportation service be organized to coordinate available transportation modes, to provide proper planning, and to achieve adequate control of operations. Army air transport is an integral part of the transportation service. Helicopter transport units provide air movement of personnel and cargo during combat service support and combat support operations. Aviation service support units provide rapid airlift administrative service that enables a support command to have prompt, dependable air transportation on a mission basis.

c. Army air transport is included in the organizational structure of Army forces employed in operations that cover a wide spectrum

of situations and conditions. Operations may range from internal defense and development assistance to cold or limited war situations to general war. Operations may be characterized by diverse terrain conditions, a variety of climatic and weather conditions, and combat situations influenced by manmade obstacles ranging from primitive to modern.

d. Because of the mission versatility and responsiveness of Army air transport, considerable reliance is placed on this mode of transportation to provide airlift of personnel and cargo for the Army forces. The extent of Army air transport service established in a particular area of operations is dependent upon the overall transportation requirements of the force involved.

8. Theater Army Support Command

a. The theater army support command (TASCOM) is a major subordinate command of the theater army. Headquarters, TASCOM, provides combat service support through subordinate operating commands to Army forces in a theater of operations and to other forces as designated by the theater army commander. Services provided by subordinate operating commands include general support to one or more field armies consisting of 8 to 12 divisions each, direct and general support to the communications zone, and rear area security and damage control within the communications zone.

b. The relationship of the theater army and the theater army support command insofar as it affects transportation is described in detail in FM 55-6. Broadly stated, within the overall responsibilities of the theater army commander is the responsibility for the assignment and utilization of the transport capability allocated to the theater army. The theater army delegates

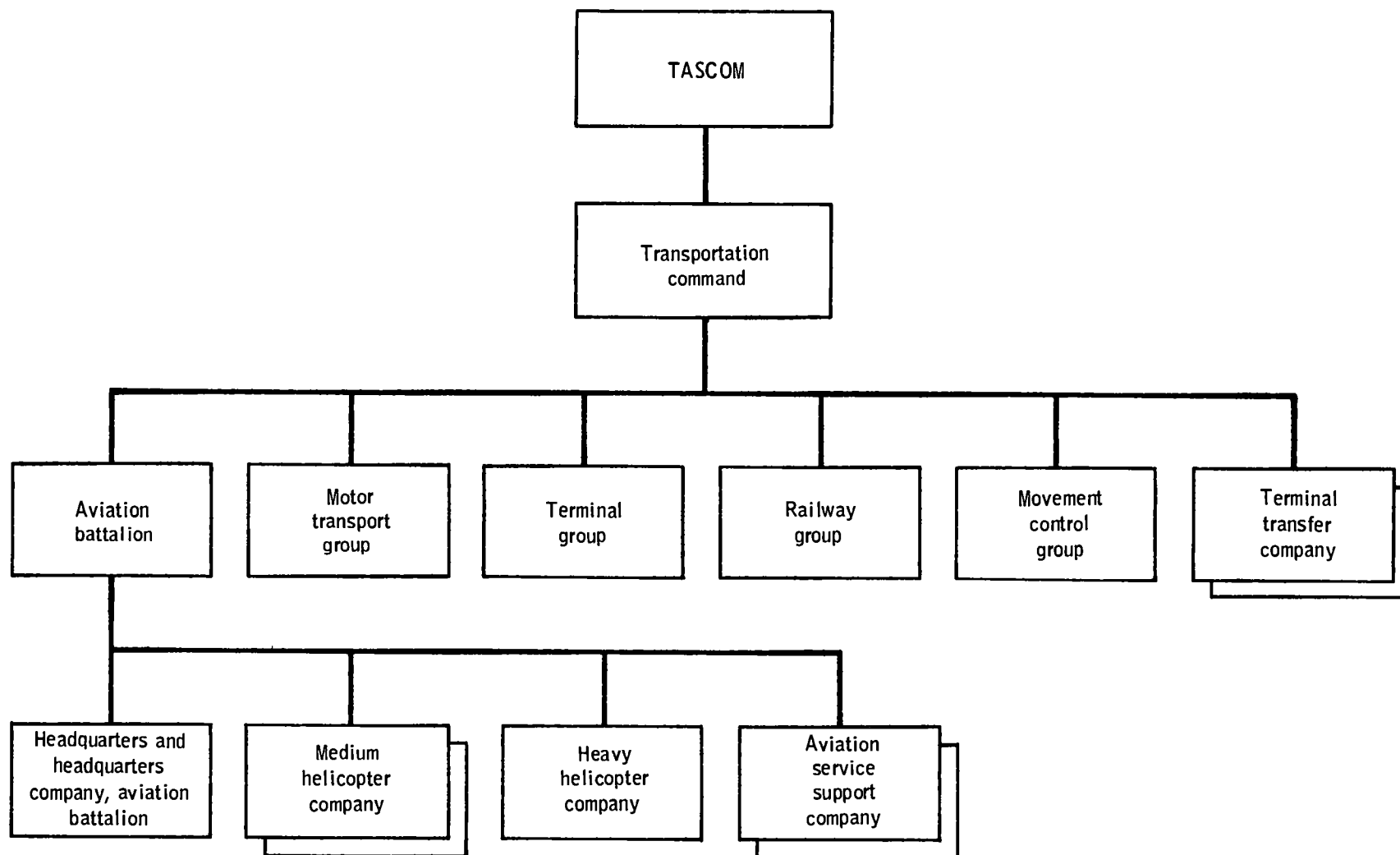


Figure 1. Army air transport in a type TASCOT transportation command to support a 12-division force.

to TASCOM the responsibility for administering the use of the Army-allocated transport capability. This includes the Army portion of intra-theater airlift provided by other services. It also includes certain Army air transport that the theater army commander may allocate to TASCOM for operations within the communications zone. Transportation services of the TASCOM are supervised and managed by a transportation command.

c. The transportation command, TASCOM, is one of the subordinate operating commands and operates under the general staff supervision of the assistant chief of staff (ACofS), movements. The command provides transportation and movements services in a theater of operations. It commands and controls the units that operate the transport modes and perform terminal services. It also coordinates transportation movements in TASCOM, including the use of the Army-allocated portion of intra-theater airlift provided by other services. Within the staff organization of the transportation command, an ACofS, movements, exercises staff supervision over and coordinates the operation of the transportation services provided by the command.

d. Army air transport is included in the transportation service for TASCOM and is furnished by aviation units of the transportation command (fig. 1). Army air transport is provided by medium and heavy helicopter companies and aviation service support companies. An aviation battalion headquarters is attached to the transportation command and provides control and coordination of the operating companies. The type, number, and mix of operating companies is dependent upon the specific Army airlift requirement of the TASCOM. Army air transport units employed in a transportation command are described in chapter 3.

e. The concept of dispersing facilities and installations in a theater of operations to avoid providing profitable targets to an enemy requires that a TASCOM have an Army air transport capability within the communications zone available to accomplish the following tasks:

- (1) To provide an immediately responsive, highly mobile airlift capability for the rapid deployment of rear area secu-

rity forces and area damage control personnel throughout the communications zone.

- (2) To provide air transport administrative service for the TASCOM command headquarters and subordinate units in the communications zone. This includes rapid air movement for general officers and staffs, groups of individuals, high priority items, aerial reconnaissance, traffic control, aerial radiological survey, and courier service. In providing courier service, the aircraft provide a manual backup for the communications system of the automatic data processing activities of the command.
- (3) To provide lateral air transport of personnel and high priority cargo between facilities and installations.
- (4) To provide feeder service with Air Force terminals that are used in intra-theater airlift.
- (5) To augment the aeromedical evacuation service.

f. When intratheater airlift from other services is not available or when field army requirements exceed the intratheater airlift capability on hand, the TASCOM Army aviation units may provide air transport into and within the field army area.

9. Field Army Support Command

a. A field army support command (FASCOM) is a major subordinate command of a field army. It plans, directs, and supervises the provision of combat service support, less construction, through functional control centers and subordinate operating commands. It also plans and directs the provision of rear area security damage control of the field army service area.

b. A FASCOM is designed to support a field army composed of a headquarters, a variable number of army and corps combat and combat support nondivisional units, a field army support command to which nondivisional combat service support units are assigned, and a variable number of corps and divisions. For planning purposes, when organized to support an 8- to 12-division force dispersed for positional

warfare, a field army generally includes an area approximately 135 to 360 kilometers (75 to 195 nautical miles) in width and 150 to 300 kilometers (80 to 160 nautical miles) in depth.

c. The subordinate operating command that provides armywide transportation services for a FASCOM is a transportation brigade. The brigade headquarters is a planning and control organization, and subordinate units carry out

the actual operations. Within the staff organization of the transportation brigade, the ACofS, movements, exercises staff supervision over and coordinates the operation of the transportation services provided by the command. Army air transport units are an essential operating element of the FASCOM transportation brigade (fig. 2). The extensive geographical area in which the FASCOM transportation service

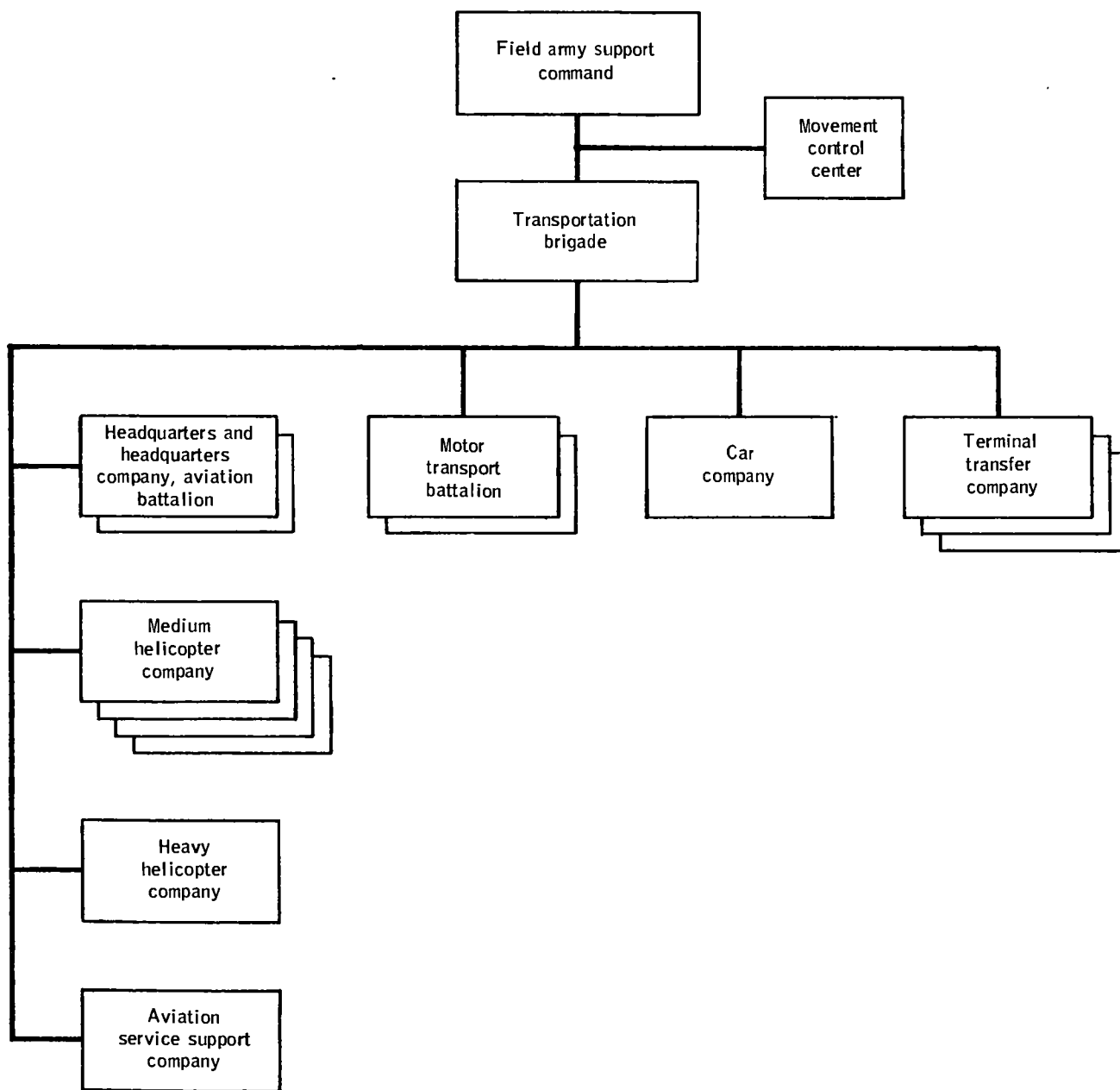


Figure 2. Army air transport in a type FASCOM transportation brigade to support a 12-division force.

operates makes it necessary that an established amount of Army airlift be available to the brigade on a continuous basis.

d. Helicopter transport companies attached to a FASCOM transportation brigade are employed primarily in combat service support operations. Normally, command and control of the operating companies is provided by an aviation battalion. Medium helicopter companies provide scheduled and nonscheduled airlift of cargo and personnel. A heavy helicopter company provides airlift of heavy bulk cargo, out-size items, and heavy equipment. Typical loads may include repair parts, missiles and components, nuclear munitions, mail, priority supplies, and equipment. Additional airlift requirements exist for the movement of rear area security personnel and replacements. The companies provide the FASCOM movement control center (MCC) with current and forecast status reports of air transport capability. Requirements for air transport support are received at the MCC and processed in accordance with priorities established by the FASCOM commander. Air movements are assigned to the companies by the FASCOM MCC.

e. The helicopter companies also provide combat support to the field army when required. Such a situation may exist when the airlift requirements of the combat forces exceeds the capabilities of organic aviation units of the divisions and corps. The field army commander may direct that the FASCOM transport helicopter units be attached to a tactical force for specific operations. The units will operate under the control of the appropriate tactical commander, who must insure that they are released to the FASCOM transportation brigade immediately upon conclusion of the specific tactical mission.

f. An aviation service support company is employed on an area basis to provide administrative airlift service for the FASCOM headquarters and its subordinate commands. The company normally is attached to an aviation battalion that provides command and control. Missions are scheduled and approved through the office of the ACofS, movements.

10. Corps Support Command

A corps is essentially a large task force con-

sisting of a variable number of divisions and other combat and combat support units. Transportation services provided to support a corps depend primarily on the relative position of the corps in the theater organization.

a. If the corps is a part of a field army, it will obtain combat service support from a FASCOM. Aviation units attached to the FASCOM transportation brigade provide combat service support airlift.

b. If the corps is employed as a separate corps—that is, operating directly under the theater army and receiving combat service support from a TASCOS—a corps support command (COSCOM) is established. A COSCOM supporting a separate corps provides services similar to those that a FASCOM provides to a field army. A transportation brigade is authorized to the COSCOM and contains an Army air transport organization similar to that provided to a FASCOM.

c. If the corps is an independent corps—that is, operating as the senior Army element in the theater with the combat service support responsibilities of a theater base—a COSCOM is established that has the capability to provide base services as well as those services normally provided by a FASCOM. A transportation brigade is authorized to an independent corps and it contains sufficient Army air transport to meet combat service support airlift requirements.

11. Division Support

a. A division is a tactical force consisting of a relatively fixed command, staff, combat, and support structure to which are assigned combat battalions in types and numbers appropriate to perform specific missions in an anticipated operational environment. A division support command is a major subordinate command of the division and provides direct support to elements of the division. The division support command has no organic Army air transport capability.

b. The Army air transport organization established to provide combat service support airlift for a division is dependent upon the relative position of the division in the theater organization.

(1) If the division is a part of a corps, it is supported by its organic Army air-

craft plus the aviation units attached to the transportation brigade of the supporting FASCOM.

- (2) If the division is employed as a separate division—that is, operating directly under theater army and receiving support from a TASCOM—a division support brigade is established. The mission of the brigade is comparable to a COSCOM supporting a separate corps. A transportation composite battalion is organized to include aviation units that provide combat service support airlift for the separate division.
- (3) If the division is employed as an independent division—that is, operating as the senior Army organization in the theater and having the combat service support responsibilities of a theater base—a division support brigade is established. This brigade provides theater base services as well as services normally provided to the division by a COSCOM. A transportation group is organized as part of the division support brigade and provides transportation services. Included in the group is an aviation battalion with Army transport helicopter units that provide the independent division with combat service support airlift.

12. Subordinate Unified or Specified Commands

a. Subordinate unified or specified commands are organized for broad continuing missions. Such commands may provide the command and control of forces engaged in internal defense and development operations. Subordinate unified commands normally assume military control over military assistance advisory elements located within their areas of interest. When U.S. foreign assistance to a host country in-

cludes sizable U.S. combat, combat support, and combat service support forces, a military assistance command may be organized.

b. A support command normally will be established as a major subordinate command of a subordinate unified command or military assistance command to provide command and control of service support units and operations. Transportation units may be assigned to the support command in quantity and by type needed to provide efficient transportation services. When the operations attain major intensity, a transportation brigade or transportation composite group will normally be assigned to the support command to provide combat service support and, when called upon by the appropriate tactical commander, also to provide combat support. The type and number of Army air transport units assigned is determined by the specific requirements.

c. Internal defense and development assistance operations require a considerable amount of Army air transport support. Operations in this type of an environment are characterized by a high degree of mobility and maneuvering, organization of fires, and utilization of terrain. There is the constant threat of insurgent activity and the disruption of the normal means of transportation in the host country. Opposing forces are usually dispersed throughout the host country and the operational environment cannot be identified by a FEBA (forward edge of the battle area) or by the continuous lateral disposition of forces.

d. The heavy demand for airlift makes centralized control of Army air transport units essential. When these units are providing combat service support, they will operate under the control of the support command. When these units are requested to provide airlift for combat support operations, they will operate under the control of the appropriate U.S. tactical commander or senior U.S. adviser of the force supported.

CHAPTER 3 ORGANIZATION

Section I. GENERAL

13. Basic Organization

a. General.

- (1) The basic operational units of the Army air transport organization are the aviation medium helicopter company, the aviation heavy helicopter company, and the aviation service support company. Aviation battalion headquarters provide centralized command and control. Each battalion is tailored by attachment of aviation companies as required.
- (2) Tables of organization and equipment (TOE) applicable to Army air transport units provide three strength levels. Level one is the same as the former TOE full strength. Levels two and three are successive 10-percent reductions of personnel and possibly of equipment. An organization may operate under modified TOE (MTOE) when authorized by the appropriate major commander. Additional support from TOE 500 series may be necessary when air transport units are occupying semipermanent base camps during operations in undeveloped areas or in internal defense activities. Such additional support may consist of base security forces, installation engineers and repair personnel, POL storage and handling specialists, and water point operators.
- (3) Each company consists of a headquarters element, which includes personnel who control or assist in the control of the unit and who provide administrative, supply, and service support; a maintenance element, which provides

organizational maintenance services; and appropriate task elements, which form the major part of the organization. The basic characteristics of these elements and the primary duties and responsibilities normally assigned to key personnel are outlined in *b* through *d* below. Variations may be made at the discretion of the commander, within limits prescribed by higher authority, to effect optimum utilization of personnel for the accomplishment of his assigned missions in a specific situation. The command prerogative must be preserved to the greatest practicable extent at all levels to maintain operational flexibility.

b. Headquarters Element. The size of the headquarters element and the allocation of duties and responsibilities to its authorized personnel vary with the complexity of the unit and the variety of its normally assigned tasks. The headquarters normally are divided into command groups (for control) and service groups (for administration, supply, and service support). At battalion level, the headquarters element is in the headquarters and headquarters company. Duties and responsibilities of battalion staff personnel are based on the functions of command (FM 101-5). The headquarters of the aviation companies also contain a command group and a service group. A brief description follows:

- (1) *Command group.* The primary responsibility of the company commander is the successful accomplishment of the unit's assigned mission under all conditions (garrison or combat). This includes responsibility for training,

discipline, control, administration, and welfare of assigned personnel and for security, maintenance, and proper utilization of all authorized equipment. The operations officer, first sergeant, and communications chief form the company command group to assist the commander in discharging these responsibilities.

- (2) *Service group.* The service group of the company headquarters provides for the company supply and mess. Major duties of the service group are performed by the supply sergeant and the mess steward.

c. Maintenance Element.

- (1) Effective aircraft maintenance is a prerequisite of successful operation. The maintenance responsibility is therefore one which no commander can afford to neglect. The company commander personally insures effective maintenance by emphasis on maintenance in individual and unit training programs, by inspection of equipment, and by provisions of a realistic organizational maintenance program. The capability of the company is dependent on aircraft availability and normally increases in proportion to the effectiveness of organizational maintenance. The size of the maintenance element, type and amount of equipment, and personnel skill levels are determined by the type and amount of task equipment authorized and assigned by the appropriate TOE.
- (2) Every member of the maintenance platoon or section must be proficient in his MOS. The leader of the maintenance element is a rated commissioned officer qualified as an aircraft maintenance officer. He is the adviser to the company commander in all maintenance matters. Since he directs and supervises all activities of the maintenance element, he must be an efficient manager. He plans maintenance operations, provides for emergency repairs, and plans the ar-

range of tools and equipment to provide efficient service and repairs. He is responsible for the preparation of forms, records, and reports showing the status of organizational maintenance. He insures the adequate supply and authorized stockage of maintenance items and repair parts through timely requisition and constant control. He assists the commander in planning the unit maintenance program and in preparing the maintenance portion of the unit standing operating procedure (SOP).

d. Task Element. The task elements of the Army air transport company are its operating platoons. The commander of each platoon is a command representative of the company commander at platoon level. He is responsible to the company commander for training, guidance, and supervision of his platoon in compliance with company policies, orders, and directives. Platoon commanders are assigned additional company duties to broaden their knowledge and to assist the company commander. These duties are normally rotated among the company junior officers and include such assignments as mess officer, supply officer, motor officer, security officer, administrative officer, and other assignments of a temporary nature.

14. Defense of Unit Position

a. General. The commander of an Army air transport unit is responsible for the establishment of adequate defensive measures at the unit operating site. When two or more units are located at the same site, the senior commander is responsible. Normally, air transport units are provided with additional security forces to maintain a perimeter defense for the protection of the aircraft and the operating site. Additional security forces are necessary for several reasons:

- (1) Air transport units cannot adequately defend themselves while authorized TOE personnel are operating and maintaining aircraft on a sustained basis.
- (2) Air transport units normally occupy a large area at an operating site because of the number of authorized

transport aircraft and the necessity for dispersion.

- (3) Transport aircraft provide an enemy force with a lucrative target and are prime subjects for attack and destruction.

b. Passive Defense. Passive defense includes measures taken to reduce the probability of and to minimize the effects of damage caused by hostile action without the expectation of taking the initiative. Army air transport units may implement passive defense measures by dispersion, cover, concealment, and deception. Aircraft may be parked inside revetments that are dispersed throughout the operational site. Maximum use of natural terrain features such as hills and wooded areas may provide cover and concealment for personnel and aircraft and for other unit equipment. Aircraft and other easily identified objects may be camouflaged with paint that will provide minimum contrast with surrounding terrain. Other passive defense measures may include the use of listening posts, barbed wire, mines and explosives, and electronic warning devices.

c. Active Defense. Active defense includes the employment of limited offensive action to repulse an enemy attack upon a position. Army air transport units are limited in their capability for active defense and must depend upon supporting security forces for protection against enemy air and ground threats. Commanders of Army air transport units must insure that organic weapons are used in active defense against hostile aircraft in accordance with guidance stated in paragraph 15.

15. Employment of Non-Air-Defense Weapons Against Hostile Aircraft

a. General. It is necessary for commanders, supervisors, and users of non-air defense weapons to recognize the capability of organic small arms and automatic weapons to deliver large volumes of fire against low-flying hostile aircraft. The employment of non-air-defense weapons should be considered in relation to the following precepts:

- (1) Recognize the threat of enemy air-mobile operations, enemy close air support, interdiction, and reconnais-

sance aircraft against any unit in a combat theater.

- (2) Recognize the potential effect of a large volume of small arms fire that can be furnished by organic weapons against low-flying hostile aircraft.
- (3) Recognize the necessity of commanders' establishing detailed SOP's for the identification and engagement of hostile aircraft to include how identification is accomplished, which personnel will fire, techniques of fire to be used, rules of engagement, and controls to be exercised.
- (4) Recognize the necessity for training individual soldiers in aircraft identification, techniques of firing at aerial targets, and response to control methods.
- (5) Emphasize the aggressive engagement of hostile aircraft with organic weapons as specified in carefully-prepared SOP's and rules of engagement.
- (6) Recognize the threat to friendly aircraft in failure to discriminate between hostile and friendly aircraft.
- (7) Place in proper perspective the tactic of withholding fire to preclude disclosure of positions.

b. Concept.

- (1) The substantial low-altitude threat faced by units in the combat theater may be partially countered by aggressive use of the large volume of fire which non-air-defense weapons can place against this threat.
- (2) Exercise of the individual and collective right of self-defense against hostile aircraft must be emphasized. Hostile aircraft include all attacking aircraft and those positively-identified enemy aircraft which pose a threat to the unit. Large volumes of fire from non-air defense weapons have proven capable of destroying both high- and low-speed aircraft or of disrupting their attack. Exercise of this right does not demand specialized use of communications and is independent of theater air defense rules

for engagement and air defense control procedures.

- (3) Indiscriminate use of non-air-defense weapons must be prevented because of the danger to friendly aircraft and troops and of the requirement to place in proper perspective the technique of withholding fire to preclude disclosure of positions.. Effective and safe employment of these weapons necessitates Armywide training.
- (4) Situations may arise in which the exercise of the right of self defense should be temporarily suppressed or in which freer use of non-air-defense weapons against aircraft should be encouraged. The former case involves a local decision that prevention of position disclosure is paramount. Notice of such restriction is disseminated through command channels. The latter case should be based on a theater-level decision.
- (5) Use of a single rule for engagement: "Engage hostile aircraft," is based on a common sense interpretation. For example, all aircraft attacking the unit and enemy aircraft performing operations such as forward air control, reconnaissance, surveillance, or dropping or landing troops are clearly hostile aircraft.

c. Rule for Engagement. In the absence of orders to the contrary, individual weapon operators will engage attacking aircraft; engagement of all other hostile aircraft will be on order issued through the unit chain of command and will be supervised by unit leaders. Nothing in this rule is to be taken as requiring actions prejudicial to accomplishment of the primary mission of the unit.

d. Techniques. The following techniques should increase the destructive and deterrent effect against aircraft. Aircraft may be divided into two categories: low-speed and high-speed. Low-speed aircraft include helicopters and liaison, reconnaissance, and observation fixed-wing propeller aircraft. High-speed aircraft include all other propeller aircraft and all jet fixed-wing aircraft. This distinction will result in simplified engagement procedures.

- (1) *Engagement of low-speed aircraft.* In accordance with the rule of engagement, engage low-speed enemy aircraft with aimed fire, employing the maximum weapon rate of fire. Aerial gunnery techniques (less lead) generally applicable to all small arms and automatic weapons are given in FM 23-65.
- (2) *Engagement of high-speed aircraft.* In accordance with the rule of engagement, engage high-speed enemy aircraft with maximum fire aimed well in front of the aircraft, above its flight path, in order to force it to fly through a pattern of fire. This technique is not unaimed barrage fire, but requires a degree of aimed fire. It does not, however, call for careful estimation of aircraft speed and required lead.
- (3) *Use of tracer ammunition.* Automatic weapons should utilize the highest practical proportion of tracer ammunition to enhance the deterrent or disruptive effect.
- (4) *Massed fire.* Units should employ a massed fire technique when using small arms and automatic weapons in an air defense role.

Section II. COMMAND AND OPERATIONAL UNITS

16. Headquarters and Headquarters Company, Aviation Battalion

a. Mission. The aviation battalion, through attached aviation companies, provides air movement of personnel and cargo as a part of a transportation service in a theater of opera-

tions. The headquarters and headquarters company provides command, control, staff planning, and administrative supervision for attached companies.

b. Assignment. The headquarters and headquarters company, aviation battalion, is nor-

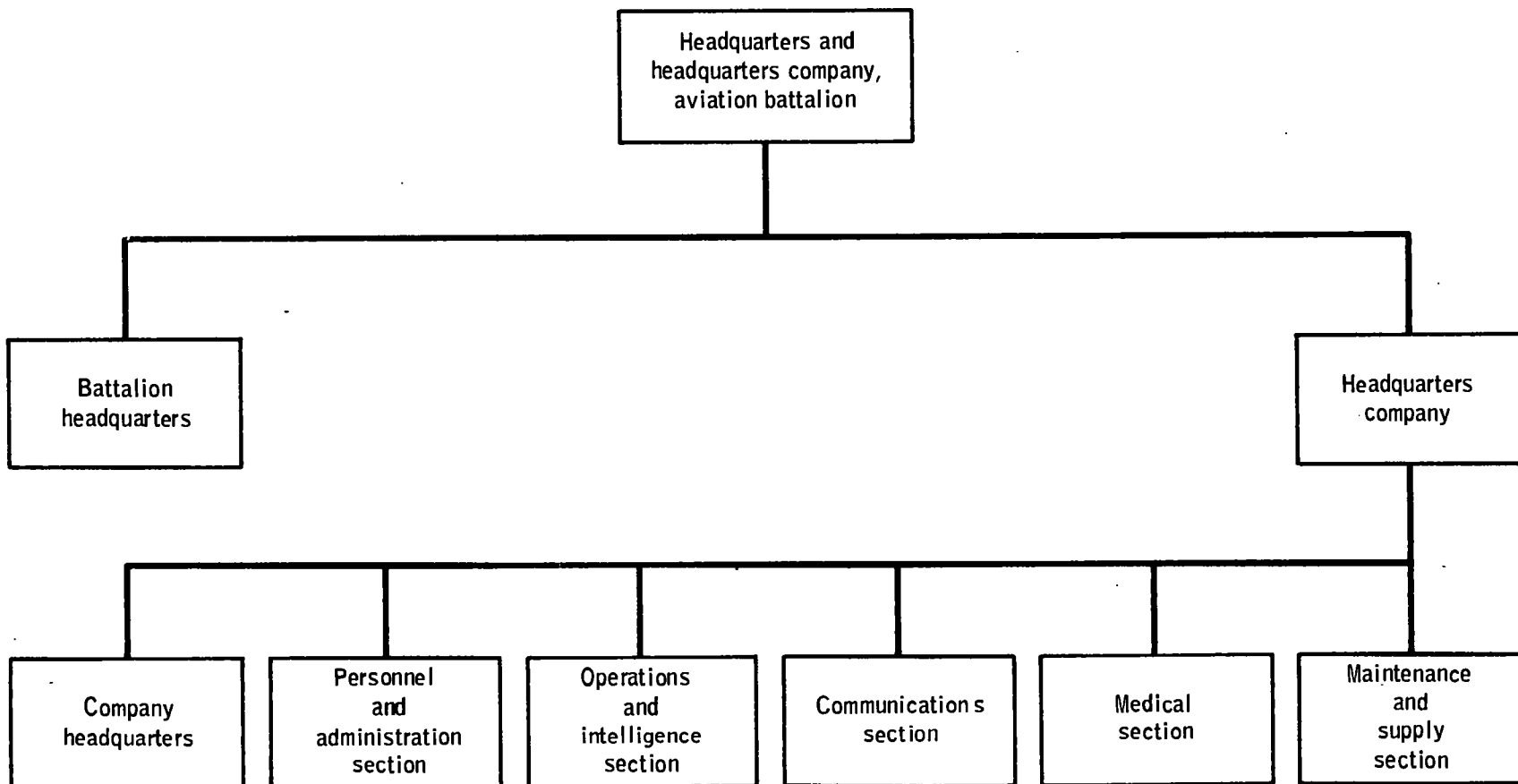


Figure 3. Headquarters and headquarters company, aviation battalion.

mally assigned to a support command when operating as part of a transportation service. This may be a theater army support command (TASCOM), a field army support command (FASCOM), a corps support command (COSCOM), or a support command of an independent force. It is normally assigned to a field army, corps, or independent force when its primary mission is combat support.

c. Capabilities. At full strength, this unit is capable of providing—

- (1) Command, staff planning, and supervision of the activities of three to seven air transport companies.
- (2) Site selection of the general area for subordinate units.
- (3) Staff supervision and command guidance for organizational maintenance and logistical functions of attached Army units.
- (4) Planning and supervision of the battalion communications system.

d. Organization. The headquarters and headquarters company, aviation battalion (fig. 3), is organized with a battalion headquarters and a headquarters company. Details of the organization are contained in TOE 1-256.

- (1) *Battalion headquarters.* The battalion headquarters is organized to function as the command and control headquarters for the employment of all assigned or attached aviation units. The battalion headquarters consists of the battalion commander, executive officer, battalion staff officers, and battalion sergeant major. Two liaison officers are provided to maintain liaison with supported or attached units. These liaison officers, who are rated Army aviators, must have a thorough knowledge of the operating capabilities and limitations of the aircraft, must be able to interpret and evaluate terrain features suitable for the selection of loading and unloading sites, and must be able to interpret and evaluate the effects of weather and other variables on the successful accomplishment of the mission. Command vehicle transportation, com-

munications, and other mission items of equipment for the battalion commander and staff are located in the personnel and administration section of the headquarters company. Aircraft support for necessary command and control is provided by three observation helicopters located in the battalion maintenance and supply section.

(2) *Headquarters company.*

- (a) *Company headquarters.* The company headquarters provides administrative service for the battalion headquarters and headquarters company. These services pertain to individual requirements of assigned personnel, including mess, supply, quarters, supervision of nonduty-hour activities, and maintenance of administrative records. The company headquarters contains the company commander, first sergeant, supply sergeant, mess steward, and other enlisted personnel required to accomplish the mission.
- (b) *Personnel and administration section.* The personnel and administration section prepares and maintains personnel records, rosters, correspondence, and reports pertaining to personnel matters of the battalion, thus relieving assigned or attached companies from as much paperwork as possible. The personnel assigned to this section are employed in the battalion headquarters and work under the supervision of the battalion adjutant.
- (c) *Operations and intelligence section.* The operations and intelligence section provides the personnel required to assist the S2 and the S3 in the performance of their duties. Sufficient personnel have been provided to operate on a 24-hour basis. The section formulates plans, policies, and procedures for the battalion commander on operations and training. The section makes studies and prepares estimates of tactical situa-

tions, prepares operations orders, executes reconnaissance as directed, and plans measures for the security of the battalion area. The section provides, plans, and coordinates the assignment of operational tasks to subordinate units and maintains statistical data on unit operations. Current availability status of subordinate units is maintained and furnished to higher headquarters. The operations and intelligence section is the center of activity within the battalion, and the successful employment of attached aviation companies is dependent upon the planning and coordination performed here. The section consists of the assistant S3 and sufficient enlisted personnel to perform its mission.

- (d) *Communications section.* The communications section consists of the communications chief, radioteletype team chief, and sufficient radio-teletypewriter and teletypewriter operators, switchboard operators, and wiremen to provide the battalion headquarters with the required communications operational capability. A radio mechanic is authorized to perform organizational maintenance on organic radio equipment, and two message clerks operate the battalion message center. A detailed discussion of communications in an aviation battalion is given in FM 1-15.
- (e) *Medical section.* The medical section furnishes emergency medical treatment, operates a battalion aid station, evacuates patients from dispersed elements of the battalion to the battalion aid station, and provides medical supervision of sanitation within the battalion. The medical section contains the section sergeant and sufficient medical specialists to perform its mission.
- (f) *Maintenance and supply section.* This section consists of the aviation maintenance officer, a unit supply technician, an automotive main-

tenance technician, and sufficient enlisted personnel to perform assigned functions. The section provides staff planning and supervision of the maintenance and supply functions of the battalion and coordinates the maintenance and supply functions of attached units. Personnel in this section accomplish organizational maintenance on the three observation helicopters authorized the unit.

e. Concept of Employment.

- (1) The headquarters and headquarters company, aviation battalion, provides command and control for three to seven attached aviation companies. There is no fixed aviation battalion structure but rather the attachment of subordinate units is dependent upon a particular operational situation, type and frequency of missions to be flown, and the size and environment of the area of operations. The internal organizational structure of the battalion headquarters makes it adaptable for employment as a command and control unit when the primary air transport mission is either combat support, combat service support and administrative service.
- (2) When the aviation battalion is providing combat service support and airlift administrative service, it normally is employed as a part of a transportation service in a theater of operations. The aviation battalion reports directly to the appropriate transportation headquarters. This may be a transportation command at TASCOT or a transportation brigade at FASCOM or COSCOM. When the battalion is providing similar air transport for a support command of a subordinate unified or specified command or an independent force, it will be employed under the control of the senior transportation headquarters. Combat service support and administrative airlift service operations originating in a support command area normally will

be repetitive in nature, and the aviation battalion will be able to accurately determine the type and number of subordinate units needed to sustain the operation over a prolonged period of time. In such a situation, the organizational structure of the aviation battalion can be stabilized. It is desirable for the aviation battalion to retain centralized control of the subordinate units when providing combat service support and administrative service airlift.

- (3) Normally, combat service support air movements are coordinated with the movement control center of a support command, and airlift administrative service flights are coordinated with the assistant chief of staff (ACofS), movements, of the appropriate transportation headquarters. The aviation battalion coordinates and assigns missions to its attached companies in accordance with priorities and procedures established by higher headquarters. The aviation battalion insures that the daily and forecasted operational status of aircraft assigned to attached companies is provided to the MCC and the ACofS, movements, in order that airlift requirements may be properly scheduled and accomplished.
- (4) When the aviation battalion is called upon to provide combat support, it is usually more advantageous to attach it to a field army, corps, or independent force, depending upon the tactical situation. When employed in combat support operations, the battalion functions under the control of the appropriate tactical commander for the length of time necessary to complete the mission.
- (5) The aviation battalion headquarters normally will be established near or at a landing area of one of its attached companies. Because the battalion must be capable of supporting both combat support and combat service support operations, it must maintain a con-

stant state of readiness. Close proximity to subordinate units will provide for more rapid coordination and will reduce the time needed to prepare for specific missions.

- (6) The battalion is capable of independent operations. However, where only token U.S. forces are present and normal combat service support troops and area logistical support points are limited or nonexistent, additional support must be planned for and provided concurrently with the deployment of the battalion. The additional support includes the means to provide all classes of supply, water points, medical facilities, engineer support, and other services not readily available from indigenous sources.

17. Aviation Medium Helicopter Company

a. Mission. The mission of the aviation medium helicopter company is to provide air transport of personnel and cargo for combat service support and combat support operations. This mission includes but is not limited to—

- (1) Movement of personnel and cargo along air lines of communication.
- (2) Supplemental aeromedical evacuation.
- (3) Air movement of reserve forces in preparation for combat operations.
- (4) Rapid displacement of rear area security forces.

b. Assignment. The aviation medium helicopter company is assigned as required. It normally is assigned to a support command when operating as part of a transportation service with the primary function of providing combat service support. It may be assigned to a field army, corps, or independent force when its primary function is combat support. The company is attached to an aviation battalion when operations are of such magnitude as to justify a command type aviation unit.

c. Capabilities. At full strength, the company has the following capabilities:

- (1) Operation of one heliport with facilities for visual and instrument terminal air traffic control.

- (2) Transport of personnel and cargo in day and night operations including periods of inclement weather.
- (3) Aerial resupply of forces in the combat zone.
- (4) Transport of nuclear munitions, nuclear weapons and associated equipment, and dangerous cargo. Air movement of cargo falling within these categories must comply with existing regulations and directives.
- (5) Augmentation of Army Medical Service aeromedical evacuation elements.
- (6) Transport of one of the following loads or a combination thereof in one lift as a maximum effort using all 16 CH-47A transport helicopters of the company and operating within a radius of 100 nautical miles at sea level and under standard day conditions: 528 troops, or 94 tons of cargo, or 384 litter cases and 48 ambulatory cases. For sustained operations, these capabilities are reduced and adjusted by aircraft availability and by operational considerations explained in paragraph 5.
- (7) This company is 100 percent mobile using organic vehicles and aircraft.

d. Organic Transport Aircraft.

- (1) *Description.* The CH-47A Chinook is the organic medium transport helicopter assigned to a medium helicopter company. It is powered by two 2,200-horsepower turbine engines mounted on the aft fuselage and driving tandem, three blade rotors, simultaneously. The helicopter is equipped with a nonretractable quadricycle landing gear. It has a power-operated rear loading ramp, which permits straight-in loading. The sealed hull gives the CH-47A a water landing capability.
- (2) *Dimensions.*
 - (a) Length of fuselage: 51 feet.
 - (b) Length with rotor blades unfolded: 98 feet 3 $\frac{1}{4}$ inches.
 - (c) Extreme height: 17 feet 11 inches.

(d) Diameter of rotor: 59 feet 1 $\frac{1}{4}$ inches.

(3) *Cargo transport provisions.*

(a) *Cargo compartment.*

1. Height of floor above ground: 2 feet 6 inches.
2. Usable length: 30 feet 6 inches.
3. Floor width: 7 feet 6 inches.
4. Height: 6 feet 4 inches.

(b) *Cargo door.*

1. Width: 7 feet 6 inches.
2. Height: 6 feet 4 inches.

(c) *External cargo.*

1. Maximum hook or sling capacity: 16,000 pounds.
2. Rescue hoist capacity: 600 pounds.
3. Cargo loading winch capacity: 3,000 pounds.

(4) *Troop transport provisions.*

- (a) Troop seats: 33.
- (b) Medical patients: 24 litter cases, plus 3 ambulatory cases.

(5) *Operational characteristics (computed at standard conditions at sea level).*

- (a) Maximum gross weight: 33,000 pounds.
- (b) Operating weight: 17,154 pounds.
- (c) Fuel capacity: 4,090 pounds.
- (d) Allowable cargo load (50-nautical-mile radius): 13,000 pounds.
- (e) Allowable cargo load (100-nautical-mile radius): 11,756 pounds.
- (g) Fuel consumption per hour (computed at maximum gross weight at sea level): 1,300 pounds.

e. Organization. The aviation medium helicopter company (fig. 4) is organized with a company headquarters, an operations platoon, two helicopter platoons, and a service platoon. Details of the organization are contained in TOE 1-258.

- (1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. The company headquarters contains the company commander, first sergeant, mess steward, supply sergeant, and sufficient personnel to perform the admin-

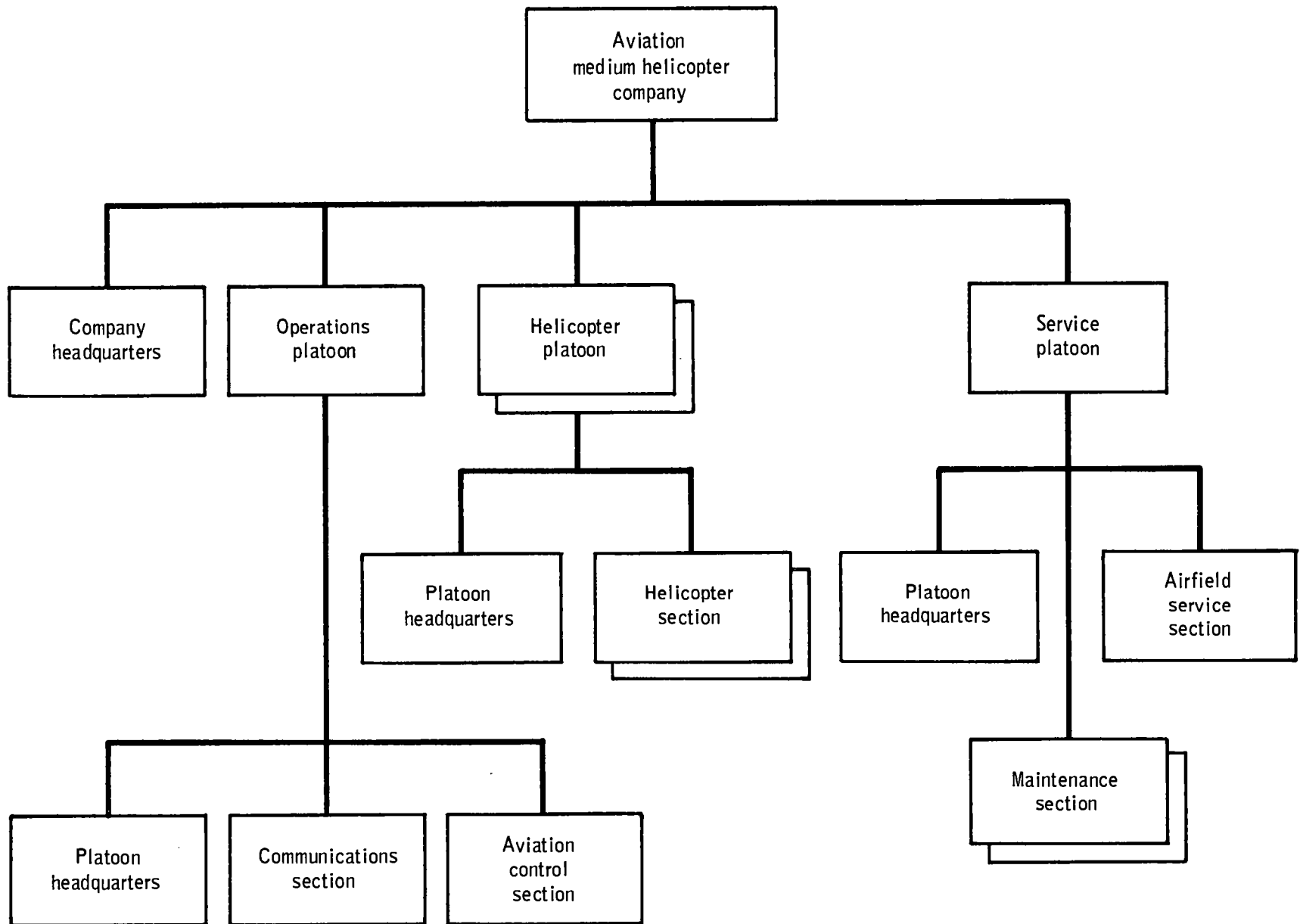


Figure 4. Aviation medium helicopter company.

istrative and mess functions of the company.

- (2) *Operations platoon.* The operations platoon contains a platoon headquarters, a communications section, and an aviation control section. The operations platoon provides the personnel to establish and operate the heliport; to install, maintain, and assist in the operation of communication and navigational equipment utilized at the heliport; and to provide terminal approach control.

(a) *Platoon headquarters.* The operations platoon headquarters is the center of the company's activities, and its organization and efficiency determines the degree of success of the unit in supporting assigned missions. It includes a flight operations officer, who is responsible for the overall operations of the platoon to include coordination of flight missions, air traffic control, and airfield services. He is also responsible for processing requests for aircraft and for assigning flight missions to the helicopter platoons in such a manner as to insure most efficient utilization of all assigned helicopters and flight personnel. An NCO flight operations chief, with sufficient enlisted personnel to operate on a 24-hour basis, supervises the installation, operation, and maintenance of the airfield operations center; assists aviation personnel in the preparation of flight plans; posts operations maps and charts; and files the latest flight, airfield, and weather information. Two crew chiefs are provided for organizational maintenance of the two observation helicopters assigned to the company. A clerk-typist is provided to type operations orders and reports and to maintain the records of personnel in flight status.

- (b) *Communications section.* The communications section supervises and participates in the establishment,

operation, and maintenance of the communications system of the company. This section contains the communications chief, GCA equipment repairman, radioteletype-writer team chief, and sufficient enlisted personnel to accomplish the mission. Refer to FM 1-5 for wire and radio diagrams of the company communications net.

- (c) *Aviation control section.* The aviation control section provides terminal traffic control at the base heliport during day, night, and inclement weather operations. The aviation control section contains the senior control tower operator, senior landing control operator, control tower operator, and landing control operator.

- (3) *Helicopter platoon.* Each helicopter platoon contains a platoon headquarters and two helicopter sections. The two helicopter platoons provide air transport capability of the company.

(a) *Platoon headquarters.* The platoon headquarters is comprised of a platoon commander, a platoon sergeant, and a light truck driver. The platoon commander is responsible for the efficient operation of his platoon. He reports to the operations officer on the state of proficiency and training of the aviators. He assists the company commander and the operations officer in formulating plans for both routine and special missions involving his platoon.

- (b) *Helicopter section.* Each helicopter section consists of a section commander, an assistant section commander, six rotary wing aviators, and four helicopter flight engineers. Each section is equipped with four CH-47A transport helicopters. The section commander is responsible to the platoon commander for the successful operation of the helicopter section. Section commanders insure that aviators performing missions

are properly briefed on such aspects of operations as flight formation to be used, alternate plans, routes to be flown, weather, and communication frequency. Flight missions are assigned by the platoon commander or the section commander in coordination with the operations platoon headquarters.

- (4) *Service platoon.* The service platoon consists of a platoon headquarters, two maintenance sections, and an airfield service section. The platoon provides organizational maintenance of organic helicopters, vehicles, and allied equipment, and it provides airfield service, to include crash and rescue service.

(a) *Platoon headquarters.* The platoon headquarters includes a platoon commander, helicopter repair technician, platoon sergeant, motor sergeant, helicopter technical inspectors, parts specialists, wheeled vehicle mechanics, and sufficient enlisted personnel to accomplish the mission. The platoon headquarters supervises, inspects, and provides administrative support for helicopter organizational maintenance. The platoon commander keeps the operations officer informed of aircraft availability and plans estimates of future aircraft availability. The platoon headquarters also provides personnel to perform organizational maintenance on assigned vehicles and allied equipment.

(b) *Maintenance section.* Each maintenance section consists of a maintenance supervisor and sufficient helicopter mechanics to accomplish the section's mission. The maintenance section performs organizational maintenance on assigned aircraft. It is desirable for the two maintenance sections to operate at the company heliport as an integral unit since this is a more efficient operation. However, each maintenance section is equipped so that it

can accompany and support a helicopter platoon of eight CH-47A helicopters when detached from the company for a short period of time.

- (c) *Airfield service section.* The airfield service section consists of a section chief and sufficient personnel to provide ground crash and rescue service, refueling service, parking and mooring service, and general assistance to helicopters utilizing the heliport.

f. Concept of Employment.

- (1) An aviation medium helicopter company may be employed as part of a support command transportation system for a TASCOT, FASCOT, COSCOM, subordinate unified or military assistance command, or independent force by providing airlift during combat service support operations. When the magnitude of the airlift requires the employment of several helicopter companies, command and control will be exercised through an aviation battalion. The appropriate tactical commander may direct that the aviation medium helicopter company may be used to provide combat support for the tactical forces. During such periods, the company will be under the operational control of the supported tactical unit for employment as needed.
- (2) Airlift missions performed by the aviation medium helicopter company normally will be accomplished within a radius of action of approximately 100 nautical miles and usually will be in areas where fixed wing landing strips are not available. The company receives daily missions from the aviation battalion for scheduled or unscheduled transport of personnel and cargo.
- (3) The aviation medium helicopter company can be employed in day and night operations and during periods of inclement weather. However, the effectiveness of the company is reduced during periods of darkness and during periods of inclement weather.

- (4) The aviation medium helicopter company is employed in support of airlift requirements, depending upon its capability. The company provides its higher headquarters, generally the aviation battalion, with a daily report of aircraft availability. When the company is being employed as part of a support command transportation system, it is essential that a realistic availability factor be established and maintained so that commitments for the movement of personnel and cargo by airlift can be properly scheduled on a sustained basis. Aviation medium helicopter companies can normally provide 60 percent of assigned helicopters on a daily basis. However, this percentage may vary depending upon status of training, maintenance, parts support, geographical area of operations, and other factors that affect employment. The important point is that the company should attain an acceptable percentage of available helicopters and maintain that percentage on a daily basis so that its capability can be depended upon over an extended period of time.
- (5) When missions are received by the company, assigned personnel are designated as liaison officers. The purpose of the liaison officer is to effect prompt liaison with the unit to be supported to insure that adequate technical advice and assistance are provided. The liaison officer is the contact between the aviation medium helicopter company and the supported unit and plays an important role in insuring that the transport helicopters are properly employed in accordance with a reasonable degree of safety. Two observation helicopters are organic to the company for use in providing rapid transportation for the company personnel who are designated as liaison officers. The contents of appendixes B and C of this manual should be brought to the attention of the supported unit.

18. Aviation Heavy Helicopter Company

a. Mission. The mission of the aviation heavy helicopter company is to provide airlift of heavy loads of cargo and to provide supplementary lift of personnel for combat service support and combat support operations. This mission includes but is not limited to—

- (1) Airlift of heavy items of equipment, supplies, vehicles, aircraft, weapons, command post vans, and forward surgical operating rooms.
- (2) Aerial evacuation of crashed and damaged aircraft.
- (3) Airlift of heavy cargo loads between supply activities.
- (4) Airlift of heavy cargo loads at transfer points between modes of transportation.
- (5) Supplemental aeromedical evacuation.

b. Assignment. The aviation heavy helicopter company is assigned as required. It normally is assigned to a support command when providing heavy airlift during combat service support operations. It may also be assigned to a field army, corps, or independent force when its primary function is combat support. It is normally attached to an aviation battalion.

c. Capabilities. At full strength, the company has the following capabilities:

- (1) Necessary communications and terminal facilities for the operation of a company heliport.
- (2) Transport of heavy cargo loads and personnel during day, night, or limited visibility conditions.
- (3) Establishment of local air traffic control at loading and unloading areas.
- (4) Airlift of nuclear munitions, nuclear weapons, and associated equipment and dangerous cargo. Air movement of cargo falling within these categories must comply with existing regulations and directives.
- (5) Aerial resupply of forces in the combat zone.
- (6) Augmentation of Army Medical Service aeromedical evacuation elements.

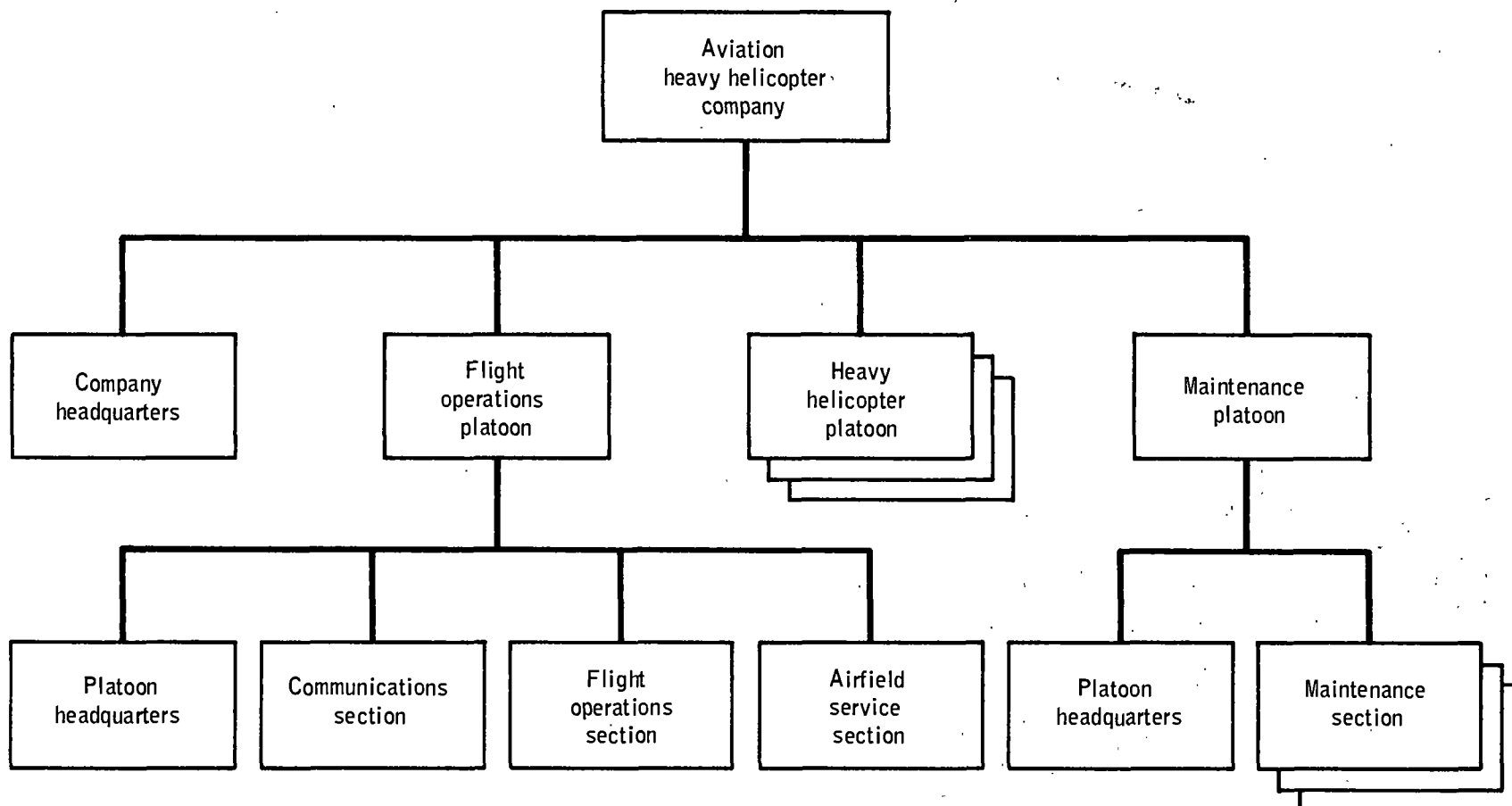


Figure 5. Aviation heavy helicopter company.

- (7) Transport of one of the following loads in one lift using the company's nine CH-54A heavy lift helicopters and operating within a radius of 10 nautical miles: 90 tons of cargo, or 612 troops, or 432 litter cases.
- (8) This company is 100 percent mobile using organic vehicles and helicopters.

d. Organic Heavy Lift Helicopter.

- (1) *Description.* The CH-54A Skycrane is the organic heavy lift helicopter assigned to the heavy helicopter company. It is a twin-turbine, single-main-rotor helicopter equipped with one antitorque tail rotor. It is capable of external transport of jettisonable cargo loads. Provisions for the attachment of cargo or personnel vans (nonjettisonable) are also incorporated. The fuselage is constructed in a crane configuration. The cockpit area provides seating for five persons. There is side-by-side seating for the pilot and copilot. From an aft-facing position, a third pilot, called the remote pilot, is able to control the aircraft and its external loads during loading and unloading operations through a set of flight and cargo handling controls. The two remaining seats can be occupied by a flight engineer and one additional individual.
- (2) *Dimensions.*
 - (a) Length of fuselage: 70 feet 3 inches.
 - (b) Length with rotor blades unfolded: 88 feet.
 - (c) Extreme height: 24 feet 10 inches.
 - (d) Diameter of main rotor: 72 feet.
 - (e) Main landing gear tread: 19 feet 9 inches.
 - (f) Ground clearance under fuselage: 9 feet 4 inches.
- (3) *Troop and cargo compartment (detachable pod).*
 - (a) Inside length: 34 feet 9 inches.
 - (b) Inside height: 6 feet 5 inches.
 - (c) Inside width: 11 feet 6 inches.
 - (d) Empty weight of detachable pod: 3,300 pounds.
- (4) *Troop transport provisions (detachable pod).*

- (a) Troops: 68.
- (b) Medical patients: 48 litter cases.
- (5) *External cargo provisions.* Maximum hook or sling capacity: 20,760 pounds.
- (6) *Operational characteristics (computed at standard conditions at sea level).*
 - (a) Maximum gross weight: 42,000 pounds.
 - (b) Operating weight: 19,000 pounds.
 - (c) Fuel capacity: 5,720 pounds.
 - (d) Allowable cargo load (10-nautical-mile radius): 20,680 pounds.
 - (e) Allowable cargo load (25-nautical-mile radius): 19,520 pounds.
 - (f) Cruising speed: 95 knots.
 - (g) Fuel consumption per hour (computed at maximum gross weight at sea level): 3,460 pounds.

e. Organization. The aviation heavy helicopter company (fig. 5) is organized with a company headquarters, a flight operations platoon, three heavy helicopter platoons, and a maintenance platoon. Details of the organization are contained in TOE 1-259.

- (1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. The company headquarters contains the company commander, first sergeant, mess steward, supply sergeant, motor sergeant, and sufficient enlisted personnel to perform administrative, vehicular maintenance, and mess functions of the company.
- (2) *Flight operations platoon.* The flight operations platoon contains a platoon headquarters, communications section, flight operations section, and airfield service section. The flight operations platoon provides the personnel to establish and operate the base heliport; to provide communication for the unit; to install, maintain, and assist in the operation of navigational equipment used at the heliport; to provide terminal approach control; and to provide airfield service to include crash and rescue.

- (a) *Platoon headquarters.* The platoon headquarters includes a platoon commander who, with the assistance of a platoon sergeant and a clerk typist, supervises the activities of the communications section, the flight operations section, and the airfield service section. The platoon commander provides the company commander with a continuous appraisal of the operations and training of the company. He insures that proper coordination is effected between the flight operations platoon, the maintenance platoon, and the three heavy helicopter platoons in order to provide efficient airlift support for assigned missions.
- (b) *Communications section.* The communications section supervises the communications system of the unit and participates in the establishment, operation, and maintenance of the system. This section includes a communications chief and sufficient enlisted personnel to accomplish its mission.
- (c) *Flight operations section.* The flight operations section includes an airfield operations officer, an enlisted flight operations chief, flight operations specialists, control tower operators, landing control operators, and a GCA (ground control approach) repairman. The airfield operations officer supervises the activities of the section and keeps the flight operations platoon commander continually informed of the operational status of the company. The flight operations section processes requests for helicopters and assigns flight missions to the heavy helicopter platoons of the company. Assignment of missions is contingent upon availability of helicopters and flight crews and is made in such a manner as to insure most efficient utilization of all assigned heavy lift helicopters and flight personnel. The section operates on a

24-hour basis and provides flight dispatch service to include scheduling, clearing, and dispatching helicopters; coordinating flight plans; assisting aviation personnel in the preparation and processing of flight clearances; posting operations maps, charts, and flight information boards with the latest pertinent information; maintaining a current file of aircraft flying regulations and navigational information; and coordinating with the airfield service section concerning ground service requirements of assigned and transient helicopters. The section operates the company control tower and the GCA system, establishes and operates a local air traffic control zone, and monitors and controls all traffic arriving in and departing from the area.

- (d) *Airfield service section.* The airfield service section performs refueling of assigned and transient helicopters and provides ground crash rescue service. The section consists of an airfield service chief and sufficient enlisted personnel to accomplish the mission.
- (3) *Heavy helicopter platoon.* There are three heavy helicopter platoons in the company. Each platoon has three CH-54A heavy lift helicopters assigned to perform the airlift mission of the company. The platoon includes a platoon commander, nine helicopter pilots, three flight engineers, a platoon sergeant, and a general clerk. The number of rated aviators permits each heavy-lift helicopter to be operated with a pilot, a copilot, and a remote pilot aboard. The platoon commander is responsible for control, supervision, and efficient operation of his platoon. He assists the company commander and the flight operations platoon commander in formulating plans for missions involving his platoon. He coordinates with the airfield operations officer concerning the op-

erational and training status of his platoon. The platoon commander insures that the aviators assigned to specific missions are properly briefed and that liaison is promptly established with the supported units. The platoon sergeant coordinates the maintenance effort of the platoon with elements of the maintenance platoon and supervises and trains the enlisted personnel of the platoon.

(4) *Maintenance platoon.* The maintenance platoon consists of a platoon headquarters and three maintenance sections. The platoon provides organizational maintenance and repair parts support to the organic heavy-lift helicopters.

(a) *Platoon headquarters.* The platoon headquarters includes the platoon commander, platoon sergeant, technical inspectors, and sufficient enlisted personnel to accomplish the unit's mission. The platoon commander acts in the capacity of the company maintenance officer. He is responsible to the commander for aircraft organizational maintenance and for the training of maintenance and aircraft parts specialists. He advises the flight operations platoon on aircraft availability and makes estimates of future availability.

(b) *Maintenance section.* There are three maintenance sections in the maintenance platoon. Each maintenance section contains a warrant officer aircraft maintenance technician, maintenance supervisor, assistant maintenance supervisor, and sufficient enlisted helicopter mechanics to accomplish the section's mission. Each maintenance section is organized and equipped to enable it to provide organizational maintenance for one heavy helicopter platoon. Most efficient utilization is obtained from the maintenance sections when they are

operated as an integral unit, usually located at the base heliport.

f. Concept of Employment.

(1) An aviation heavy helicopter company may be employed as part of a support command for a TASCOM, FASCOM, COSCOM, subordinate unified command, military assistance command, or independent force by providing airlift of heavy loads during combat service support operations. The aviation heavy helicopter company may also be employed in combat support operations. In such cases the company, or elements of the company, will be attached to the appropriate tactical unit for employment as needed.

(2) The design and capability of the helicopters that are organic to the aviation heavy helicopter company make this unit more responsive for the airlift of heavy cargo loads over short distances. It is intended that the company will be employed for the airlift of heavy equipment, supplies, vehicles, weapons, and aircraft. When equipped with a detachable pod, the helicopters of the company can provide supplemental air movement of troops and casualties. The capability of the company should not be dissipated in supporting missions that can be accomplished by aviation medium helicopter companies.

(3) The company provides its higher headquarters, generally the aviation battalion, with a daily report of aircraft availability. Mission assignments normally are received by the company on a daily basis. While the aviation heavy helicopter company is capable of providing support for scheduled airlift operations along air lines of communication, such employment is the exception rather than the norm. Typical operations employing helicopters of the aviation heavy helicopter company will be airlift of crashed or damaged aircraft to repair sites, airlift of heavy cargo loads between supply activities, airlift of heavy cargo

and equipment across terrain barriers, and airlift of heavy cargo loads at transfer points between modes of transportation.

19. Aviation Service Support Company

a. Mission. The mission of the aviation service support company is to provide administrative airlift service within a field army or a communications zone. This mission includes—

- (1) Rapid air transport of commanders and staffs.
- (2) Air movement of small groups of personnel and/or high priority items.
- (3) Aircraft support for aerial radiological survey, observation, and reconnaissance in support of rear area protection operations.
- (4) Airlift for command, control, liaison, and courier service.

b. Assignment. The aviation service support company is normally assigned to a TASCOM or a FASCOM. It may also be assigned to other commands as required. When the company is assigned to a TASCOM, it is attached to an aviation battalion (TOE 1-256) of the transportation command. When the company is assigned to a FASCOM, it is attached to an aviation battalion (TOE 1-256) of the transportation brigade. When the company is authorized in other commands, it is normally attached to the senior transportation organization.

c. Capabilities. At full strength the company has the following capabilities:

- (1) Establishes and operates a base airfield with necessary communications and air traffic control facilities for visual and instrument flight operations.
- (2) Provides rapid air transport of personnel and high priority items during day and night operations and in periods of inclement weather.
- (3) Provides local motor transport taxi service for general officers, senior commanders, and other personnel who utilize the aviation services.
- (4) Provides 1,850 flying hours per month. The aircraft flying hour rates are dependent upon the adequacy of logis-

tical support and local operational policies. The quoted figure is determined as follows:

Type aircraft	Quantity	Monthly flying hour rate per aircraft	Total Monthly flying hours by type aircraft
OH-6	5	50	250
UH-1D	10	80	800
U-8F	10	80	800

d. Organic Aircraft. The company is provided with two types of helicopters and one type of fixed wing aircraft in order to accomplish its flying mission. Organic helicopters are the OH-6 Pawnee and the UH-1D Iroquois. The U-8F Seminole is the fixed wing aircraft authorized. A detailed description of the characteristics of each type of aircraft is included in *e* through *g* below.

e. OH-6 Pawnee.

- (1) *Description.* The OH-6 Pawnee is a single-engine four-place, observation helicopter designed for visual observation, target acquisition, reconnaissance, and rapid transport for command, control, liaison, and courier service. It is powered by a free turbine engine in the 250-shaft-horsepower category and has a single main rotor and one antitorque rotor. The main rotor can be folded for ease of storage or when the helicopter is being air transported. The OH-6 incorporates dual flight controls, with the secondary cyclic control removable. Flight instruments provide a capability for day or night operations under marginal visibility conditions. The space behind the pilot and copilot seats is referred to as the cargo area and contains troop-type seats which are stowable when not in use.
- (2) *Dimensions.*
 - (a) Length of fuselage: 23 feet 6 inches.
 - (b) Length with rotor blades unfolded: 30 feet 2 inches.
 - (c) Extreme height: 8 feet 4½ inches.
 - (d) Diameter of rotor: 26 feet 4 inches.
- (3) *Cargo transport provisions.*
 - (a) *Cargo compartment.*
 1. Height of floor above ground: 25¼ inches.

- 2. Usable length: 46 inches.
- 3. Floor width: 50½ inches.
- 4. Height: 48½ inches.
- (b) *Cargo door.*
 - 1. Width: 2 feet 2¼ inches.
 - 2. Height: 3 feet 4 inches.
- (4) *Troop transport provisions.*
 - (a) Troop seats: 3.
 - (b) Medical patients: 3 ambulatory.
- (5) *Operational characteristics (computed at standard conditions at sea level).*
 - (a) Maximum gross weight: 2,700 pounds.
 - (b) Operating weight: 1,280 pounds.
 - (c) Fuel capacity: 382 pounds.
 - (d) Allowable cargo load: 1,038 pounds.
 - (e) Cruising speed: 120 knots.
 - (f) Fuel consumption per hour: 130 pounds.

f. UH-1D Iroquois.

- (1) *Description.* The UH-1D Iroquois is a utility type, compact helicopter having a low silhouette for operations in combat environment. Missions performed by this helicopter include transportation of personnel, equipment, and supplies and medical evacuation. It is powered by a single turbine engine that provides 1,100 takeoff shaft horsepower. The helicopter is equipped for day and night flight and for operations under instrument flight conditions. It has a single main rotor, a single antitorque rotor, and an all-metal fuselage. It has sliding doors along each side of the cabin area to allow simplified straight-through loading from either side or from both sides simultaneously. The copilot's controls are removable, providing space for an extra passenger.
- (2) *Dimensions.*
 - (a) Length of fuselage: 41 feet 11 inches.
 - (b) Length of rotor blades unfolded: 57 feet 1 inch.
 - (c) Extreme height: 13 feet 1 inch.
 - (d) Diameter of rotor: 48 feet 3 inches.

- (3) *Cargo transport provisions.*
 - (a) *Cargo compartment.*
 - 1. Height of floor above ground: 32 inches.
 - 2. Usable length: 92 inches.
 - 3. Floor width: 96 inches.
 - 4. Height: 52 inches.
 - (b) *Cargo door.*
 - 1. Width: 92 inches.
 - 2. Height: 49 inches.
 - (c) *External sling load capacity.* 4,000 pounds.
- (4) *Troop transport provisions.*
 - (a) Troop seats: 12.
 - (b) Medical patients: 6 litters plus 1 ambulatory.
- (5) *Operational characteristics (computed at standard conditions at sea level).*
 - (a) Maximum gross weight: 8,800 pounds.
 - (b) Operating weight: 4,889 pounds.
 - (c) Fuel capacity: 1,430 pounds.
 - (d) Allowable cargo load (50-nautical-mile radius): 2,582 pounds.
 - (e) Cruising speed: 100 knots.
 - (f) Fuel consumption per hour: 487 pounds.

g. U-8F Seminole.

- (1) *Description.* The U-8F Seminole utility airplane provides rapid transport of personnel and of limited quantities of high priority cargo. It is a low-wing monoplane powered by two supercharged, fuel-injection engines rated at 340 horsepower each. The airplane has sufficient instrumentation, navigation, and deicing equipment installed to permit operations in instrument flight conditions. The interior has a separate crew and passenger compartment. The crew compartment, arranged for a pilot and copilot, is equipped with dual controls. It is separated from the passenger compartment by sliding doors. The passenger compartment has five airline type seats which can be removed to convert the aircraft into a light cargo carrier. There is a 300-pound baggage compartment aft of the pas-

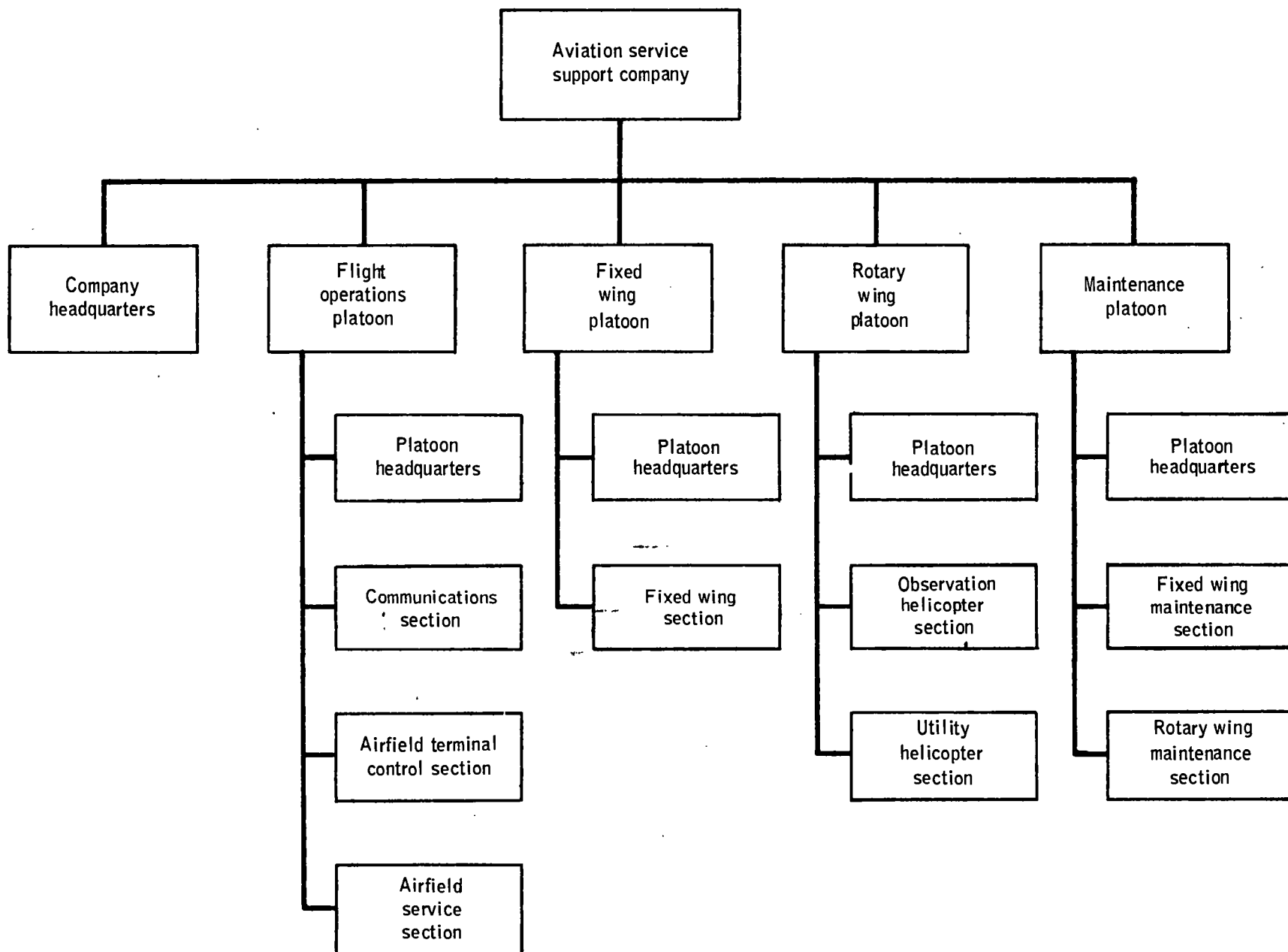


Figure 6. Aviation service support company.

senger compartment. Access to the cabin in through a door located on the left side of the fuselage aft of the wing which incorporates stair-type steps for ease of entry and exit.

- (2) *Dimensions.*
 - (a) Length of fuselage: 33 feet 4 inches.
 - (b) Extreme height: 14 feet 2 inches.
 - (c) Wing span: 45 feet 10½ inches.
- (3) *Cargo transport provisions.*
 - (a) *Cargo compartment.*
 - 1. Height of floor above ground: 48 inches.
 - 2. Usable length: 110½ inches.
 - 3. Floor width: 55 inches.
 - 4. Height: 55 inches.
 - 5. Cargo space: 168.8 cubic feet.
 - (b) *Cargo door.*
 - 1. Width: 50½ inches.
 - 2. Height: 26½ inches.
- (4) *Troop transport provisions.*
 - (a) Troop seats: 5.
 - (b) Medical patients: 5 ambulatory.
- (5) *Operational characteristics (computed at standard conditions at sea level).*
 - (a) Maximum gross weight: 7,700 pounds.
 - (b) Operating weight: 5,950 pounds.
 - (c) Fuel capacity: 1,380 pounds.
 - (d) Allowable cargo load (50-nautical-mile radius): 1,450 pounds.
 - (e) Cruising speed: 160 knots.
 - (f) Fuel consumption per hour: 204 pounds.

h. Organization. The aviation service support company (fig. 6) is organized with a company headquarters, a flight operations platoon, a fixed wing platoon, a rotary wing platoon, and a maintenance platoon. Details of the organization are contained in TOE 1-407.

- (1) *Company headquarters.* The company headquarters provides command and administration for the company and supervision of operations, maintenance, supply, and training. It contains the company commander, executive officer, first sergeant, mess steward, supply sergeant, and sufficient personnel to perform the admin-

istration and mess functions of the company. The position of an executive officer is included because of the highly specialized mission of the company and its relationship to a support command headquarters. In routine operations, this unit will provide air transportation to general officers, senior commanders, and senior staff members. The executive officer is required to assist the company commander in providing continuous supervision of responsive air transport service. He will supervise unit administration and will serve as the unit aviation safety officer and as an aviator in either fixed or rotary wing operations. Personnel administration is provided to the company by a servicing personnel activity. Unit level medical service is provided by a medical element of the support command.

- (2) *Flight operations platoon.* The flight operations platoon contains the platoon headquarters, the communications section, the airfield terminal control section, and the airfield service section. Personnel of the platoon provide the technical skills required to establish and operate the base airfield and its associated services.

- (a) *Platoon headquarters.* The flight operations platoon headquarters is the focal point of the company's activities, being located at the base airfield operations office, and providing terminal services for flight crews and incoming and outgoing passengers. It includes a flight operations officer, who is responsible for the overall operations of the platoon to include coordination of flight missions, air traffic control, and airfield services. He is also responsible for processing requests for aircraft and for assigning flight missions to the fixed and rotary wing platoons in such a manner as to insure most efficient utilization of aircraft and flight personnel. He is assisted by an NCO flight opera-

tions chief and sufficient enlisted personnel to operate the facilities on a 24-hour basis; to assist flight personnel in the preparation and filing of flight plans; to post operations maps and charts; to maintain the latest flight, airfield, and weather information; and to maintain required records of personnel on flight status. Four chauffeurs are provided to drive three sedans authorized for taxi service in and around the airfield and to local destinations. One of these chauffeurs drives during the night hours when administrative flights are normally not as frequent as during daylight hours.

- (b) *Communications section.* This section includes an NCO communications chief and sufficient enlisted personnel to establish and maintain wire and radio nets in the company and to advise the company commander on communication matters. Personnel operate the radio-teletypewriter set that is used for filing flight plans and for obtaining current weather and other associated flight information.
 - (c) *Airfield terminal control section.* This section includes personnel who operate the control tower and provide traffic control on, and in the area of, the base airfield. Landing control personnel of the section operate authorized radar equipment that enables the base to maintain a 24-hour-a-day operation even during inclement weather conditions.
 - (d) *Airfield service section.* This section consists of an airfield service supervisor and sufficient personnel to provide refueling service, parking and mooring service, ground crash and rescue service, and general assistance to transient aircraft utilizing the base airfield.
- (3) *Fixed wing platoon.* The fixed wing platoon contains a platoon headquar-

ters and a fixed wing section. This platoon supports those flight requests where distance, time, and the availability of airfields make it advantageous to use multiengine fixed wing aircraft.

- (a) *Platoon headquarters.* The platoon commander is responsible for the efficient operation of the platoon. He reports to the flight operations officer on the proficiency and training of the assigned officer and warrant officer aviators. He assures that the current availability status of both aircraft and pilots is coordinated with the flight operations platoon. He assists the company commander and the flight operations officer in formulating plans for both routine and special flight missions involving his platoon. Owing to the high percentage of senior officers utilizing the aircraft of this platoon, pilots must be thoroughly familiar with their authority and responsibility during the execution of a flight to insure safe operation in all conditions encountered. The platoon sergeant supervises the work of the enlisted personnel assigned to the platoon.
- (b) *Fixed wing section.* This section operates the 10 multiengine fixed wing U-8F aircraft authorized the company. The section commander supervises the assigned personnel that include 2 flight leaders, 17 officer and warrant officer aviators, a section sergeant, 10 crew chiefs and a light truck driver. The section commander is responsible to the fixed wing platoon commander for the successful operation of the section. It is normal that the section will be formed into two flights of 5 aircraft each, supervised by a flight leader and including sufficient aviators and crew chiefs to perform assigned missions. The flight leaders assure that the aviators and crews are properly briefed on missions and, when necessary, com-

mand in-flight formations. In addition, flight leaders are responsible for the complete operation of a flight when for extended periods flights are placed in direct support of a using unit away from the base airfield.

- (4) *Rotary wing platoon.* The rotary wing platoon contains a platoon headquarters, an observation helicopter section, and a utility helicopter section. The type of helicopters assigned to the platoon is based on a need for short range interheadquarters helicopter service and for intrazonal rapid transport helicopter service. The characteristics of the authorized helicopters permit operations into areas unsuited for fixed wing aircraft.
- (a) *Platoon headquarters.* The functions and responsibilities of personnel assigned to the platoon headquarters are essentially the same as those indicated in (3)(a) above.
- (b) *Observation helicopter section.* There are 5 OH-6 observation helicopters authorized the section. The section commander supervises the the assigned personnel that include three aviators, a section sergeant, three helicopter mechanics, and a light truck driver. He insures that assigned missions are coordinated with users and that aviators are properly briefed on all aspects of the flight.
- (c) *Utility helicopter section.* This section operates the 10 UH-1D utility helicopters authorized the company. The section commander supervises the assigned personnel that include 2 flight leaders, 17 officer and warrant officer aviators, a section sergeant, 10 crew chiefs, and a light truck driver. Personnel authorized in this section perform duties similar to those of the fixed wing section described in (3)(b) above.
- (5) *Maintenance platoon.* This platoon consists of a platoon headquarters, a fixed wing maintenance section, and a

rotary wing maintenance section. It provides organizational maintenance and repair parts for the company's aircraft, radios, avionics equipment, vehicles, and generators.

- (a) *Platoon headquarters.* The platoon commander supervises the platoon's organizational maintenance activities, reports to the flight operations officer on the status of aircraft maintenance, and arranges for higher level maintenance support on aircraft and other equipment as required. For aircraft maintenance, he is assisted by a warrant officer aircraft repair technician. A transportation supply sergeant, one senior aircraft parts specialist, one ordnance parts specialist, one signal parts specialist, and one supply clerk are authorized for requisitioning, stocking, and issuing repair parts and related technical supply items to mechanics and crew chiefs. Two powermen are authorized to maintain the unit's generators. In addition, the powermen provide a 24-hour-a-day operational capability for the two 5-kilowatt generators authorized to provide electrical supply to the radar set AN/TPN-8. One fixed wing and two rotary wing technical inspectors are assigned to insure that organizational maintenance is performed in accordance with prescribed quality control standards. These inspectors also inspect aircraft repair parts that are received by the unit or are being shipped as unserviceables to a higher level maintenance activity. An avionics equipment maintenance supervisor supervises four avionics equipment mechanics, one GCA equipment repairman, and one radio mechanic. A motor sergeant, three vehicle mechanics, and one helper maintain the company's vehicles.
- (b) *Fixed wing maintenance section.* The section consists of a maintenance supervisor and sufficient fixed

wing mechanics to accomplish organizational maintenance on the 10 U-8F aircraft assigned to the unit.

- (c) *Rotary wing maintenance section.* The section is supervised by a maintenance supervisor, who has sufficient helicopter mechanics to provide organizational maintenance for the 5 OH-6 and 10 UH-1D helicopters assigned to the unit.

i. *Concept of employment.*

- (1) An aviation service support company is employed within a communications zone or a field army area to provide administrative airlift service for the headquarters and subordinate elements of a support command.
- (2) The number of companies employed is dependent upon the specific administrative airlift requirements. Normally, two aviation service support companies are authorized in a TASCOM when the command is supporting an 8- or 12-division force. The companies are attached to an aviation battalion that is assigned to the TASCOM transportation command. Only one aviation service support company is authorized in a FASCOM that is supporting an 8- or 12-division force. The company is assigned to the FASCOM transportation brigade and normally will be attached to the aviation battalion. One company is also authorized in a COSCOM that is supporting a separate corps. The company is attached to an aviation battalion authorized in the COSCOM transportation brigade.
- (3) The airlift resources of the aviation service support company are coordinated and controlled in accordance with established transportation practices. Within each transportation command or brigade, an ACofS, movements, exercises staff supervision over and coordinates the operations of the transportation services. An air transport branch is one of the subdivisions of the ACofS, movements. Request for administrative airlift

service will be received and processed through this branch. Users may request service by direct communication or may utilize the communication facilities of the nearest transportation movements office. Specific missions will be approved and scheduled based upon available resources and in accordance with priorities established by the appropriate commander. The aviation service support company provides the ACofS, movements, air transport branch with the daily status of operational aircraft. This permits missions to be accepted, promptly approved, and scheduled in accordance with available resources. Routine coordination for missions is accomplished directly between the aviation service support company and the air transport branch as indicated in figure 7. Supervision and monitoring of the operations is continually accomplished by the aviation battalion and the ACofS, movements, and deviations from normal or routine procedures are coordinated between these two elements.

- (4) Organic aircraft of the company furnish a pooled airlift capability to support a variety of administrative airlift requirements. This pooled capability replaces those aircraft previously organic to various subordinate headquarters elements of a support command which have been deleted.
- (5) The aircraft of the aviation service support company will normally be employed from a base airfield located in the vicinity of a support command headquarters. Flights will depart on a mission basis, providing pickup and delivery service at designated locations. Landing sites will be limited only by the capabilities of the aircraft and the requirement to insure maximum safety for each flight. When a need exists for extended administrative airlift service at a particular location or in support of a specific subordinate unit of the support command, aircraft of the company may be

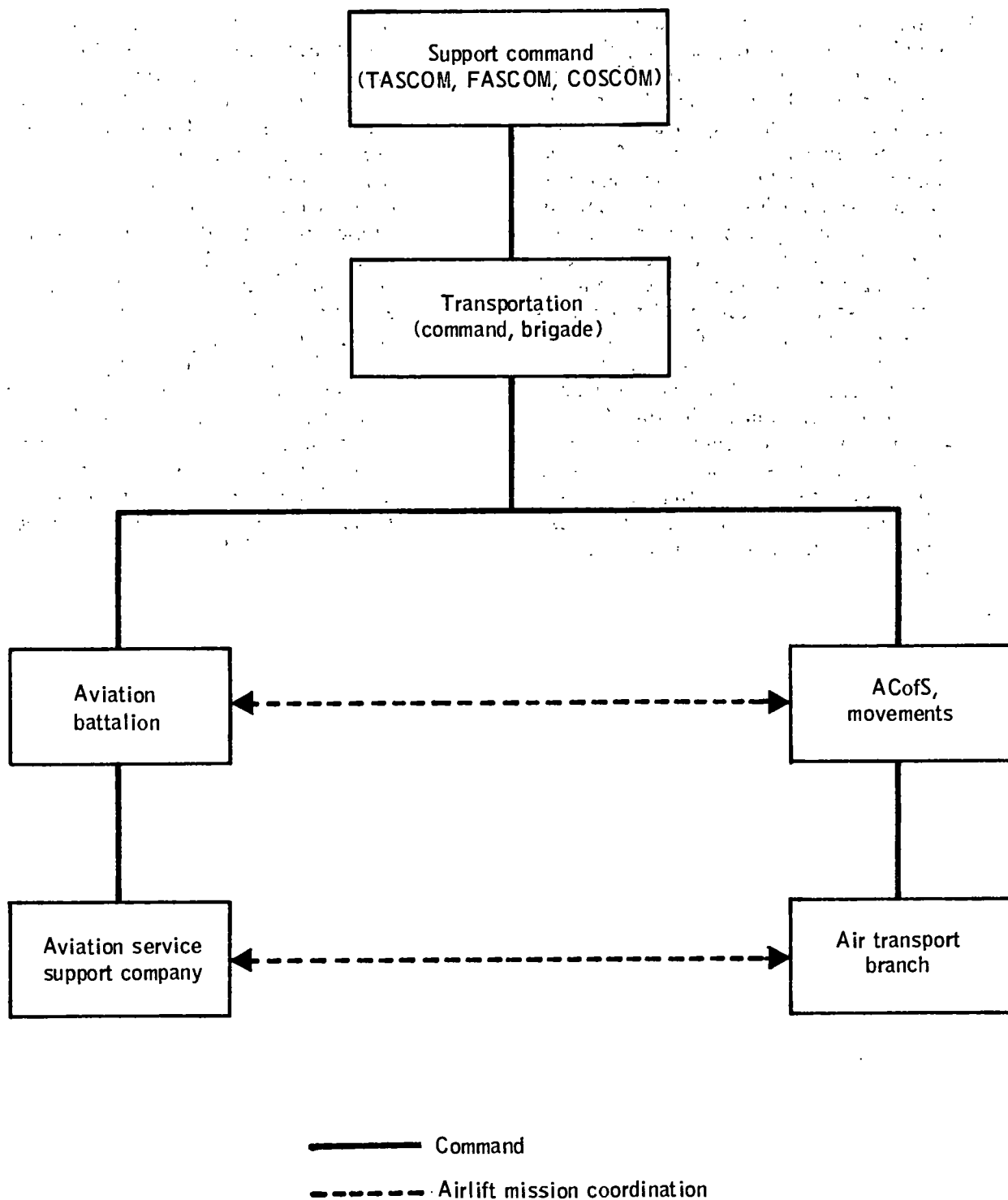


Figure 7. Command and coordination for administrative airlift services.

employed from an alternate operating site for the duration of the required service. When it becomes necessary for the company to operate more than

one airfield, additional terminal control, communications, and ground servicing personnel and equipment must be provided from TOE 29-500.

(6) Aircraft assigned to the company are employed for rapid point-to-point air transport of personnel and high priority items. These aircraft are also employed by the support command and its subordinate elements for such missions as road patrol, traffic control, aerial radiological survey, liaison, courier, observation, and reconnaissance in support of rear area protection operations. The assignment of both observation and utility helicopters and a utility fixed wing aircraft provides the unit with considerable flexibility in supporting these missions. The determination of the specific type of aircraft to be employed for a particular mission is dependent on such factors as maneuverability of aircraft, distance to be flown, time available, weather conditions, available landing

facilities, number of passengers involved, and weight of cargo. Generally, the multiengine fixed wing utility aircraft will be used to air transport groups of personnel and high priority items over extended distances and where landing facilities suitable for fixed wing aircraft are available. These aircraft will also be used as a prime source of air transport for general officers and key staff personnel. The utility helicopters will provide essentially the same service except that flights will normally be over shorter distances. Both of the utility type aircraft can operate day and night in instrument weather conditions. The observation helicopter also has a day and night operational capability but has a limited instrument weather capability.

CHAPTER 4

COMBAT SERVICE SUPPORT OPERATIONS

Section I. ARMY TRANSPORT AIRLIFT

20. General

The combat service support with which this manual is concerned normally is provided through a transportation organization that manages and coordinates the various modes of transportation. It must have a high degree of flexibility to permit necessary diversion, concentration, and allocation of transportation. Flexibility is particularly required under all types of tactical situations and operational environments. The desired integration of modes and flexibility of operations is attained through centralized direction and decentralized execution. Army air transport units are an integral part of a support command transportation service and provide considerable mobility towards the transportation effort when employed in combat service support operations.

21. Employment

Army air transport provides the field commander with highly mobile, rapid air movement that is capable of bypassing terrain barriers and manmade obstacles. These advantages enable aviation units to be employed in combat service support operations that cover a broad spectrum of situations.

a. Figure 8 depicts the employment of air transport units providing air movement from a logistical base to a combat force such as a division or brigade that is operating in an underdeveloped area. Similar airlift is provided by Army air transport units when supporting forces engaged in an insurgency operational environment. This type of employment is characterized by the movement of personnel and cargo over extended distances, usually over pockets of resistance or insurgent controlled or dominated territory, with delivery being ac-

complished as far forward as practical. Aircraft make daily deliveries to the combat forces, normally to airstrips and landing sites located within the division and brigade area. However, when feasible, loads may be delivered directly to subordinate units operating away from their base area. Maximum use will be made of scheduled deliveries, particularly of class I, III, and V supplies, to reduce the days of supply required in the forward area. In an environment of this type, the air transport units will probably provide all the logistical transportation required to support the combat forces.

b. Figure 9 depicts the FASCOM air transport units providing combat service support to a type field army of 3 corps and 12 divisions. Ideally, the Army air transport units provide airlift of personnel and cargo from various pickup points in a support command to points as far forward as practical without the necessity of making transfer to another means of transportation. Combat service support air movements generally originate from loading sites located at or within the vicinity of Army terminals, Air Force terminals, general support activities, transfer points, or replacement activities. Air transport units also provide airlift for lateral shipments when necessary; an example of a typical lateral shipment is an air movement between an Air Force terminal and a general support activity, both located within a TASCOC or FASCOM area.

c. In addition to the situations depicted in figures 8 and 9, Army air transport units support different mixes of combat forces operating under varied tactical situations. As an example, elements of the aviation battalion may provide combat service support for a separate corps, brigade, or task force or for MAAG advisory detachments or special forces detachments.

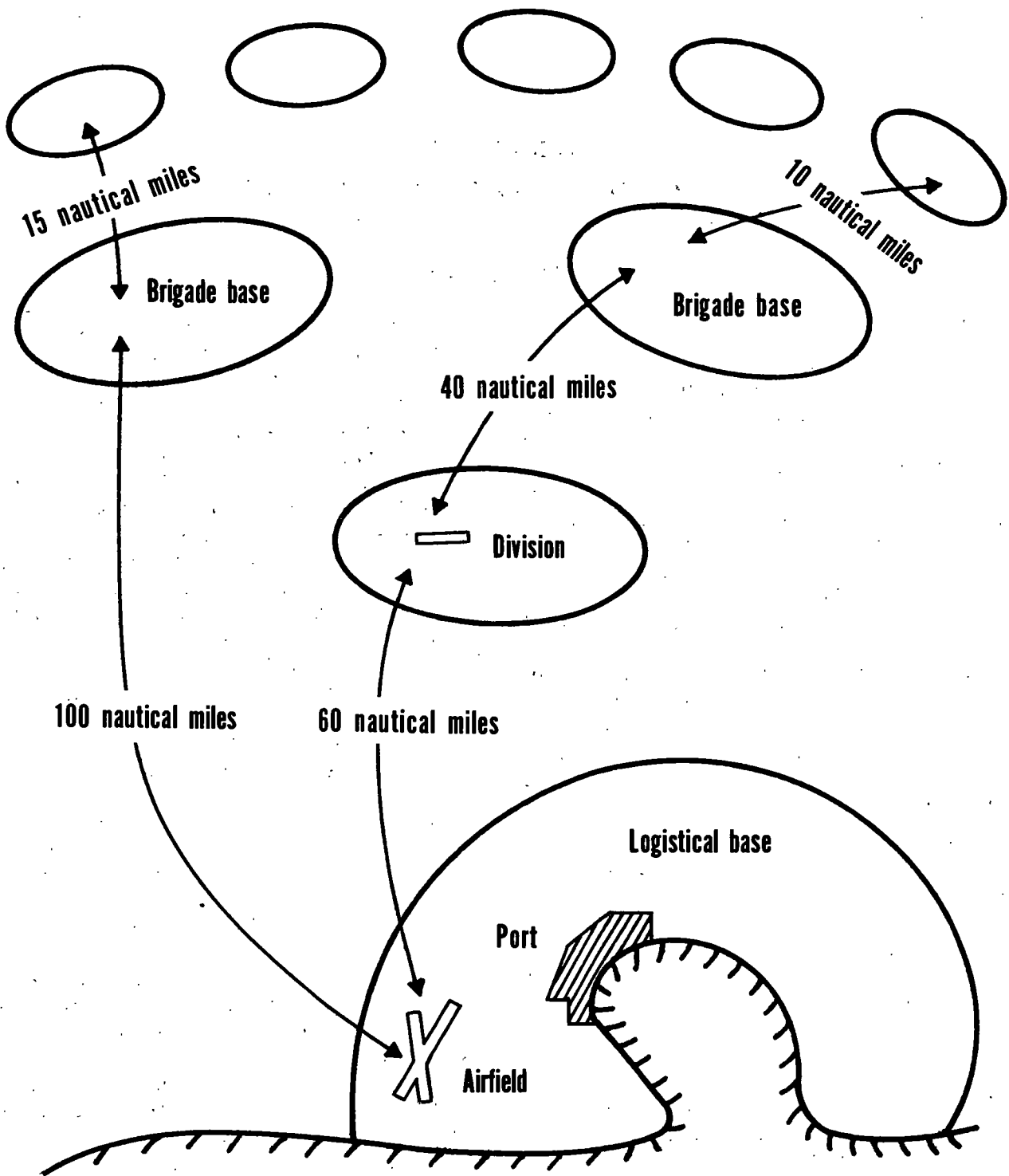


Figure 8. Air movement from a logistical base to a combat force operating in an undeveloped area.

22. Categories of Air Movements

Combat service support air movements are categorized as scheduled or nonscheduled.

a. Scheduled air movements constitute the routine air transport service that is operated in support of planned or programed require-

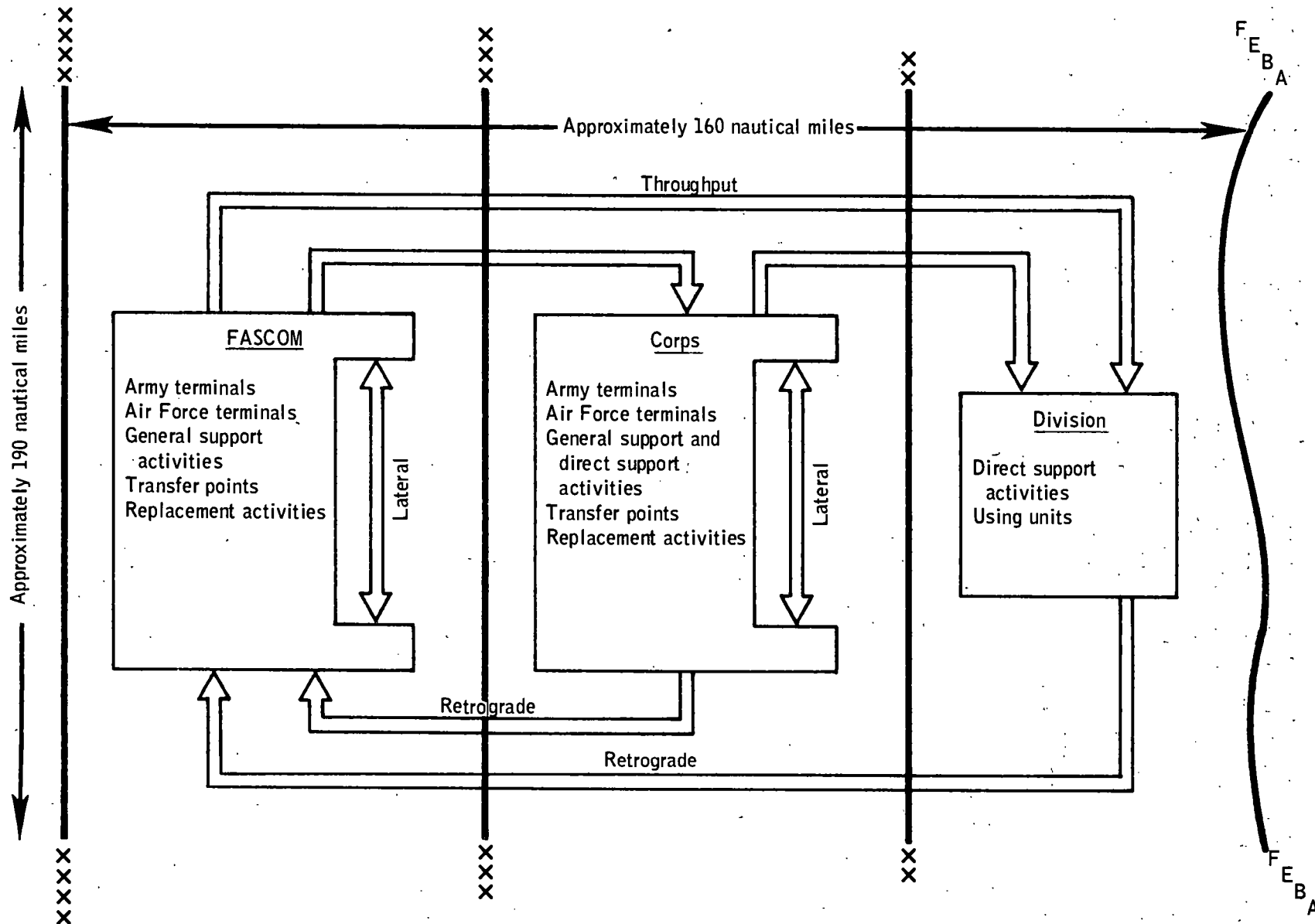


Figure 9. Air movement by FASCOM air transport in support of a 12-division force.

ments. It is most desirable from the standpoint of efficient utilization to schedule air movements since requirements can then be precisely matched to the airlift capability of the Army air transport units. The allocation of airlift to support scheduled air movements is based on priorities established by the appropriate logistical support commander and is processed through a movement control center. For details of transportation movements services, refer to FM 55-4. Scheduled air movements are generally, but not always, performed over Army air lines of communication (ALOC's). ALOC's are explained in detail in paragraphs 23 through 27. When Army transport aircraft are supporting scheduled air movements into forward areas, caution should be exercised that flights are not established to arrive and depart each day at a particular operating site according to a timetable. The repetitive arrival and departure of aircraft at fixed times can alert an enemy or an insurgent tactical force and make the flight vulnerable to attack.

Section II. ARMY AIR LINES OF COMMUNICATION

23. Concept

a. It is necessary that the Army's transportation system be organized and employed to keep pace with the mobility requirements of the combat forces. Under certain conditions, this will require Army air transport to operate over Army air lines of communication (ALOC's). ALOC's connect an operating military force with a base of operations. The primary difference between ground and air lines of communication is that ALOC's utilize aircraft as the means of movement along the route.

b. Air movement of cargo and personnel throughout a theater of operations by Air Force intratheater airlift will be exploited to the maximum consistent with the tactical situation, availability of suitable landing areas, and the ability of recipients to receive the quantity of cargo delivered. Army operated ALOC's will be established as an integral part of the Army's combat service support to the combat forces.

c. Army ALOC's are under the operational

b. Nonscheduled air movements are generated by daily actions that cannot be determined in advance and therefore cannot be acted upon in sufficient time to be included in a movements program or plan. Unexpected requirements for resupply movements, movement of additional replacements, or a diversion of other modes of transportation are typical situations that generate nonscheduled air movements. Although the optimum situation would be to have all transportation requests scheduled in advance, such a condition is not realistic. In fact, an inherent characteristic of nonscheduled movements is that such requirements increase as the combat service support effort moves toward the division area. Nonscheduled air movements are processed through a movement control center and are coordinated by the center and its field offices with the appropriate aviation unit. Priorities for nonscheduled air movements are established by the logistical support commander. Nonscheduled air movements may or may not be performed over Army ALOC's.

control of the Army. Basically an Army ALOC can be divided into two separate functioning areas: the terminal area, which includes departure and destination bases, and the interconnecting area or the air route between the terminal areas. Points of departure and destination vary widely in description and capacity, ranging from relatively sophisticated air terminals to rudimentary landing sites.

d. Air Force terminals located within the logistical base or field army area and used by Air Force aircraft as terminals for intratheater ALOC's will be controlled by the Air Force. The Army may also use Air Force controlled terminal facilities in the field army area.

e. Army terminals will be developed at advantageous geographical locations to move tonnages forward to support units, supply points, and division or brigade bases of operation. Airfields in the division area are under the operational control of the division commander.

f. ALOC's include an air transport element, which may be an aviation battalion or company,

terminal elements, and necessary movements management personnel. In addition, other supporting elements are attached as necessary to meet the requirements of the force supported.

g. The key to successful ALOC operations is the coordination and timing developed among aviation units, shippers, receivers, and terminal personnel. This coordination is generally provided by a movement control center and its subordinate transportation movement offices. The transportation movement control center is responsible for insuring that available transportation resources are used in the most efficient manner to support airlift requirements in the priority established by the appropriate commander. The center provides the planning necessary to balance the airlift capability provided by the air transport units against the requirements of the supported units. In ALOC operations, transportation movement offices are responsible for maintaining a continuous and orderly flow of traffic into and out of the airlift system. This includes both scheduled and non-scheduled air movements.

h. Army aviation medium helicopter units provide efficient air movement of personnel and cargo when operating along ALOC's within a 100-nautical-mile radius. Aerial transport support requirements for a division will vary from none to 100 percent of the daily tonnage factor. An ALOC supporting an airmobile division should be capable of handling the division's total daily tonnage on a sustained basis. To maintain the flexibility and responsiveness of an airlift system supporting an airmobile division, it may be necessary to relocate existing terminals and to establish new terminal sites commensurate with a frequently changing tactical situation. Aircraft generally make daily deliveries from a support command area to a division base and in some instances to each brigade base of operations in furtherance of the throughput concept (para 27i). For an explanation of throughput, refer to FM 55-4.

24. General Responsibilities

a. Air Force. The theater air commander is responsible for all terminal operations in support of theater Air Force air lines of communication. The Army may assist in the operation of Air Force air terminals in accordance with

local agreements. For detailed information concerning local agreements, see AR 59-106.

b. Army.

- (1) The theater army commander is responsible for the operation of Army ALOC's, which are a part of the theater transportation service.
- (2) The appropriate support commander is responsible for furnishing combat service support to the combat forces. An essential part of this responsibility is the conduct of ALOC operations.

25. Aviation Unit Operations

a. General. Rapid and dependable air movement along Army ALOC's is achieved only when close coordination and efficient working arrangements exist between the aviation units and other elements involved in the operation. Aviation units employed in ALOC operations are responsible for providing the airlift to support scheduled and nonscheduled air movements between departure and destination bases. In addition, these units normally provide air-field operation support at Army air terminals.

b. Commander's Responsibilities. The senior Army air transport commander (battalion or company) is responsible to the appropriate support commander for the efficient employment of aviation units engaged in ALOC operations. In addition, he has the following responsibilities:

- (1) Supervises and controls the operations of subordinate aviation units.
- (2) Establishes policies for ALOC flight operations.
- (3) Coordinates with other headquarters or commands concerning the technical aspects of ALOC operations.
- (4) Insures compliance with policies, directives, and regulations affecting flight operations along air routes and corridors.

c. Organization. The type of air transport organization committed to provide combat service support along Army ALOC is influenced by the tactical situation and the logistical support requirements to be airlifted. Aviation units described in chapter 3 are used to provide the necessary airlift.

d. *Employment.* The employment of aviation units in ALOC operations is directly affected by the following factors: commodity to be airlifted, quantity involved, distance between loading and unloading sites, and whether or not there is to be a recurring airlift requirement. The senior air transport commander determines, on the basis of an analysis of these factors, the most suitable composition of aviation units and where they should be located to provide the most effective ALOC support.

e. *Operational Considerations.* The following factors influence the airlift operations of air transport units providing ALOC support.

- (1) *Type, weight, and cube of cargo.* The characteristics of the cargo and the quantity to be airlifted are determining factors in the type and number of aircraft required. Helicopters can be used to airlift cargo either internally or externally. Determination of type of loading (external or internal) will be based on several variables. Frequently, external loading will be dictated because the load is too bulky to be loaded internally. When the size of the load permits a choice, a factor to be considered is security. When it is desirable to prevent the load from being seen or recognized while in flight, it should be loaded internally. Time is another determining factor. Properly prepared sling loads may be hooked up and unloaded more quickly than loads that must be loaded and unloaded internally. Frequently, a combination of both methods will be desirable. For details of external air transport procedures, refer to TM 55-450-8 and, for internal air transport procedures, refer to TM 55-450-9.
- (2) *Location of loading and unloading sites.* Maximum effectiveness in ALOC operations is obtained when loading and unloading sites are located as close as practical to the shipper and the receiver. Factors to be considered in site locations are relative freedom from obstacles; nearness to dominating terrain; good road nets; cover and concealment, particularly at forward

landing sites; and ease of identification from the air.

- (3) *Pickup and delivery times.* Effective ALOC operations are dependent on precise timing and prompt support by participating units. Timing affects aircraft flights during normal operations performed along a monitored air route in accordance with a planned flight schedule. During ground operations, timing affects aircraft utilization because the time taken to load and unload constitutes a segment of the total turnaround time for each aircraft mission. Normally, pickup and delivery during daylight permit more cargo and personnel movement than can be accomplished at night.
- (4) *Airfield service.* Broadly stated, the more extensive the ALOC operation, the greater the amount of airfield service needed by the air transport units. Airfield service must be provided promptly in order that aircraft can operate in accordance with established flight schedules.
- (5) *Air traffic control procedures and navigational aids.* Army ALOC operations provide airlift on an around-the-clock basis and during inclement weather. When ALOC movements extend from a support command into the forward areas of the divisions or corps, aircraft normally operate along air routes or corridors that are controlled and monitored through the Army air traffic regulation system. ALOC operations are closely tied into the Army air traffic regulation system because normally each individual flight is dependent on information provided through this system. A detailed explanation of the operational procedures of the regulation system is provided in paragraph 26.

26. Army Air Traffic Regulation System

a. Joint use of airspace within the combat zone has dictated a requirement for stringent control regulations. The joint force commander must establish measures to govern all types of airspace operations, to preclude interference in

mission accomplishment and to establish mission priorities. These measures will include control of the employment of aircraft or artillery weapons, safety requirements, and a means of identification or friendly aircraft foe.

b. The Army commander will establish an Army air traffic regulation system based on joint force regulations. This system will provide a means of handling air traffic within the portions of the airspace designated as an army responsibility. Control of airspace by the Army will be governed by joint Army-Air Force agreements and approved by the joint commander. The Army air traffic regulation system is established and coordinated by an aviation air traffic control company under the staff supervision of the field army aviation officer. The company is capable of regulating air traffic under instrument flight rules, establishing navigational aids, providing air warning, and furnishing other assistance to in-flight aircraft such as weather advisories and pertinent air route information. The aviation air traffic control company and its organic elements provide this service throughout the field army area.

c. Air routes are established to facilitate and control the passage of aircraft between two points, usually between major terminal areas and Army airfield locations. Air traffic control facilities are installed as dictated by aircraft density rather than by tactical boundaries. Air routes or corridors will extend as far forward as the division instrumented airfield. This provides an all-weather capability as far forward as the division base. For operations where an airmobile division requires continuous combat service support airlift or where a division operating in an undeveloped area requires sustained logistical airlift, the division commander may extend Army air traffic regulation support farther forward by installation of instrumented airfields at brigade bases.

d. Under visual flight rules, aircraft are operated in accordance with the clearance and control procedures prescribed by their respective component commanders within the overall policies established by the joint force commander. These aircraft may use established air routes or corridors or may fly direct from one point to another. The aviation air traffic control company can furnish such assistance as

navigational aids, flight route information, weather information, and air warning service.

e. For further details of the Army air traffic regulation system, refer to FM 1-60.

27. Army Air Terminals

a. *General.* Army air terminals are a part of ALOC operations. An air terminal is more than an airfield or a departure and destination base along an ALOC. An air terminal is an installation provided with the facilities for loading and unloading aircraft and for in-transit handling of personnel and cargo. Terminals are located near Air Force bases, Army supply points, replacement activities, and supported units. Specific locations are determined through coordination among the commands concerned. Terminals are established where cargo and personnel airlift requirements exist and are relocated as the tactical situation changes and units are displaced.

b. Organization.

- (1) Army air terminals vary greatly in size, appearance, organization, complexity, and physical features. Existing airfields, airstrips, and aircraft operating sites will be used whenever possible. A minimum of construction will be performed. For this reason, there is no such thing as a typical Army air terminal.
- (2) Facilities at the air terminal may include a landing strip, parking area, fuel storage area, crash rescue equipment, staging area, medical facilities, temporary cargo holding area, terminal service area, and maintenance area.
- (3) The organizational structure of each Army air terminal is dependent on the magnitude of operations performed at the particular installation. Supporting units vary from groups, battalions, or companies down to platoons or elements of a unit. Sufficient units and personnel are provided to perform the following functions: airfield operations and aircraft support, terminal support operations, and movements management. Army air terminals located within a support

command normally are manned with personnel from Army air transport units, terminal transfer companies, a movement control center, and required additional support elements. Air terminals located within a division area are normally organized and staffed with units and personnel organic to the division. However, additional personnel may be attached as required.

c. Responsibilities. An air terminal commander will be designated by the appropriate support commander or his representative. The air terminal commander will normally be the senior officer at the installation. His staff is composed of representatives from units or elements assigned to the terminal to accomplish the various functions necessary in air terminal operations. The primary purpose of the staff is to coordinate the activities of the various units to insure orderly and efficient operations. Each commander of a unit or element at the terminal is responsible for the performance of his particular organization. The air terminal commander will designate a unit to be responsible for messing and billeting of personnel. However, if the size of the force required to operate the terminal exceeds the normal support capability of assigned units, the area commander may provide housekeeping forces to perform administrative support.

d. Airfield Operations and Aircraft Support.

- (1) Normally, airfield operations and aircraft support at Army air terminals located within a support command area are performed by Army air transport units. For this reason, it is advantageous to position the aviation units at airfields, airstrips, or landing sites that are at or centrally located to supply activities and other users of Army transport airlift. At air terminals located within a division area, airfield operations and aircraft support are provided by personnel organic to division aviation units.
- (2) Airfield operations and aircraft support include the establishment and operation of the following:
 - (a) Airfield operations office.
 - (b) Control tower.

- (c) Air traffic control.
- (d) Air terminal guidance control.
- (e) Aircraft parking facilities.
- (f) POL (petroleum, oil, and lubricants) facilities.
- (g) Fire and ground crash rescue service.
- (h) Transient aircraft service.
- (i) Maintenance.

e. Terminal Support Operations. Terminal support operations include those cargo handling functions that involve loading and unloading air and surface vehicles, temporary cargo holding, documentation, and selection and arrangement of cargo into loads. In a support command, these functions are performed by terminal transfer companies or elements of such units. Terminal transfer companies are assigned on the basis of the daily amount of tonnage moved through the terminal. FM 55-55-1 (Test) gives a comprehensive explanation of the organization and operations of a transportation terminal transfer company (TOE 55-118). At division level, the division support command is responsible for terminal support operations. Normally, these functions are performed by the supply and transport battalion, but elements of a terminal transfer company may be attached to provide assistance for limited periods of time. In order to obtain a rapid and orderly flow of traffic, terminal support elements must have the capability to clear an air terminal at a rate of speed equal to the rate of incoming traffic. In the handling of cargo, the ideal situation is a perfect balance in which cargo moves into and out of the terminal at the same speed. However, this seldom occurs and some facilities must be available to handle cargo that requires temporary holding. Situations that may require temporary holding at Army air terminals are as follows: unexpected redeployment of transport aircraft to a combat support role; adverse weather conditions resulting in cancellation of scheduled flights; inability of terminal support elements or forward support units to process the cargo at a pace suitable to a steady flow through the air terminal; and diversions of flights due to maintenance, weather, or enemy action.

f. Movements Management. A transportation movement office is located at an air ter-

minal when operations are large enough to warrant a full-time office. Otherwise the terminal will be serviced by a transportation movement office located in the vicinity. The transportation movement office coordinates and manages the flow of cargo and personnel into and out of Army air terminals. In addition, the transportation movement office serves as the point of contact between the transportation service and its users. In accomplishing these missions, transportation movement offices supporting air terminals perform the following duties:

- (1) Call personnel and cargo forward to meet regularly scheduled flights or nonscheduled airlift.
- (2) Assign air release numbers for cargo and personnel movements.
- (3) Arrange for the clearance of cargo and personnel from air terminals.
- (4) Insure that cargo moves in accordance with established priorities.
- (5) Maintain liaison with other elements performing air terminal functions and with consignors and consignees.
- (6) Verify that reports of shipment (REP-SHIP's) are sent to destination transportation movement offices.

g. Additional Support Elements. The following support elements may be attached to an Army air terminal as required:

- (1) Air Force weather detachments to provide accurate, up-to-date flight weather reports and other pertinent meteorological information.
- (2) Security forces and air defense elements to provide defense. Normally, these elements will be a part of the rear area security and area damage control forces.
- (3) Engineer elements for construction and repair of the airfield, storage areas, and facilities; area damage control; and augmentation for crash rescue operations.
- (4) Medical elements to provide the terminal with medical facilities, to serve as an area medical facility, and to support retrograde airlift by casualty evacuation flights; also, teams RC

and RD, TOE 8-500, helicopter ambulance air crash rescue detachments of the medical brigade, FASCOM, to furnish aeromedical air crash rescue service.

- (5) Signal elements to augment the avionics support of the airfield, to assist in the maintenance of the communications net, and to provide the terminal commander with technical advice on communication matters.
- (6) Transportation elements to furnish additional drayage capability, to participate in local or short haul operations, and to augment the lines of communication.

h. Documentation.

- (1) Cargo moving through air terminals is documented in accordance with AR 55-10. The basic document for all cargo movements under these procedures is the transportation control and movement document, a multipurpose form which can be prepared manually or mechanically as a punchcard. The manual version of DD Form 1384 is a seven-part document, which is originated by the shipper for each transportation unit and which accompanies the cargo to the ultimate consignee. As a general procedure, Army air transport units transporting cargo will be presented an envelope containing the proper documentation in sufficient copies to move the cargo from origin to destination. The aircraft commander assumes responsibility for the documents. If the aircraft lands and discharges the cargo at an intermediate air terminal or airfield because of weather, mechanical difficulties, or a diversion in flight, the aircraft commander notifies the transportation movement office at the air terminal of origin that the shipment has been diverted and requests disposition instructions. Documentation accompanies the cargo to the air terminal or airfield of destination. When the cargo reaches destination, the documents are disposed

of according to established procedures. In addition, a copy of the documentation is returned to the air terminal of origin, where it is retained as a record of the completion of the shipment.

- (2) Personnel group movements are flight-manifested by replacement activities or staging area elements, unit personnel sections, or the combat units. Individual personnel movements are flight-manifested by the air transport operations personnel or aircraft crew members.

i. Throughput distribution. Throughput distribution, which refers to shipments that bypass intermediate supply installations, is used in air movements whenever possible. Transshipment may be required, particularly in a corps or division area, when incoming cargo may arrive at a destination base aboard fixed wing aircraft and then be transferred to helicopters for unit distribution. While some transshipment cannot be avoided, repackaging is minimized since supplies are palletized, containerized, and coded to conform to the needs of individual units. When unit distribution is accomplished by helicopter, cargo is normally air transported externally. For details of external air transport procedures refer to TM 55-450-8.

j. Security.

- (1) *General.* Defense requirements of Army air terminals will vary greatly in scope and will be governed by a number of factors which may vary daily. Some of these factors are as follows: proximity to the forward edge of the battle area, nature and types of terrain, enemy surveillance

capability, fluidity of combat operations, degree of air superiority, size and importance of the terminal, degree of permanency of the terminal, and friendliness or hostility of the local civil populace.

- (2) *Local defense.* Local defense is primarily defense against ground attack from guerrilla forces and infiltrating enemy troops operating in rear areas and from insurgent tactical forces operating in an insurgency operational environment. Defense against any attack greater in scope than the foregoing cannot be provided by local defense measures. Combat units may be attached to an air terminal to increase local defense as required. Local security forces should be of sufficient strength to ward off any ground attack long enough to permit all aircraft to become airborne. This involves a 15- to 30-minute period after receipt of the warning. During this time, the attacking force must be kept 800 or more yards from the landing strip to minimize the effects of small arms fire and light mortars. Parked aircraft are particularly vulnerable to both. Defense measures must be planned in advance to meet various situations.
- (3) *Air defense.* The composition of an Army air terminal is such that the installation is normally only capable of passive air defense. Active air defense for the protection of air terminals must be provided by attached forces.

Section III. MOVEMENT CONTROL FOR AIRMOBILE LOGISTICS (SKYWATCH)

28. General

The material in this section is intended as an aid to better understanding of a movement control technique, known as Skywatch, developed to provide effective supply support for airmobile operations. Skywatch is applicable to aircraft engaged in supply support operations

from a logistical base to an airmobile force. It is used primarily to support division units. However, the technique may be implemented when larger size forces are employed in an airmobile operation.

29. Changing Situations

- a.* Any operating military force must be

connected with a base of operations by lines of communications along which supplies may move at a speed that will allow completion of the mission. When the operating military force is engaged in airmobile operations, the requirements for speed, flexibility, and maneuverability necessitate that supplies move at a rate comparable to that of the operating force. These factors, coupled with the operating range of an airmobile force, require that resupply be accomplished primarily by aircraft.

b. Because of rapidly changing tactical conditions and the inherent characteristics of airmobile operations, problems of resupply are encountered that are peculiar to this type of operation. Airfields and landing sites are rapidly established where needed for the immediate tactical operation and, either by necessity or by prior plan, evacuated or abandoned as the situation dictates. Supplies en route to airfields or operating areas may arrive at the intended destination only to find the landing site no longer in operation but evacuated or fallen into enemy control. Also, a rapidly changing tactical situation may generate urgent demands from individual units for supplies that are aboard incoming aircraft but destined for other units.

c. It is necessary that aircraft operating from a logistical base and providing supply support to airmobile forces be capable of changing destination while in flight. When such a diversion of destination takes place, the cargo must be directed to a location where it can be effectively used. There is a requirement for a responsive and rapid system of control to insure timely arrival of supplies at the most appropriate place. To meet this requirement, the Skywatch technique has been developed.

30. Operation of Skywatch

a. Essentially, Skywatch controls the movements of incoming and outgoing aircraft that are providing combat service support airlift from a logistical base to an airmobile force. Skywatch is organized within the transportation section of a division support command and normally is located at the support command command post. Within an airmobile division, movements control specialists assigned to the transportation section staff the Skywatch element. These personnel are not authorized in the

transportation section of other type army divisions and must be obtained from other sources when the division or its subordinate units are employed as an airmobile force.

b. Skywatch personnel operate communication facilities and provide movement instructions to all aircraft performing combat service support airlift. Personnel also maintain flight operations charts that enable rapid identification of incoming and outgoing flights. The charts display a record of each aircraft by tail number, departure and arrival time, destination, and commodity aboard. Direct supervision of Skywatch is provided by the division transportation movements control officer who is located in the transportation section of the support command post.

c. Skywatch radio facilities enable communications with the supporting logistical base, all major division and brigade airfields, and incoming and outgoing aircraft. The logistical base commander insures that each aircraft providing combat service support en route to or departing from the airmobile force area contacts Skywatch via radio. Skywatch, knowing the current situation of each brigade base (via communications with the forward support operations officer in each committed brigade), diverts aircraft to any division location upon direction of the support command operations officer. Additional information is provided to Skywatch by the aircraft themselves. First, the aircraft are required to call in after departing the logistical base, identify their cargo by shipment number, and receive instructions. Then, as they approach the destination landing area and establish contact for landing instructions, they become the link capable of informing Skywatch of current, up-to-the-minute airfield intelligence. Skywatch expedites the evacuation of prisoners of war, patients, equipment, supplies, or empty containers by routing returning aircraft to airfields where pickup can be accomplished, and by arranging refueling, if necessary.

d. The basic supply information needed at the Skywatch element is the air movements requirements for each operating base in terms of class, type, and quantity of supplies. The support command operations officer in the support command post provides necessary supply in-

information to the transportation movements control officer, who is responsible for Skywatch. Cargo requirements are projected at midnight for the following 24 hours and can be revised continually as the situation changes. Priorities may change frequently but, at any period of time, they guide Skywatch in placing necessary supplies and equipment at the right place, in the correct amount, on time. By the use of Skywatch, supplies can begin landing at a new base within minutes after word is flashed that the base is capable of accepting traffic.

e. Additional considerations involved in Skywatch are as follows:

- (1) *Communication.* The supporting logistical base establishes and operates two closed radio-communications nets. One net provides communications between the movement control center of the logistical base and the division transportation officer. The second closed net is used exclusively by the division support command operations officer and the supporting logistical base supply manager. Although the volume of traffic over each net precludes the elimination of either one, one net can be used for a limited time as a backup net when radio difficulties affect one or the other net. With the establishment of a closed net between movements personnel at the logistical base and division base, timely notification is received by the transportation section of supply flights scheduled to arrive in the division or brigade bases of operation.
- (2) *Report of shipment.* The report of shipment (REPSHIP) serves as the principle transportation document to

identify supplies being moved by the aircraft. REPSHIP's are transmitted by the movement control center logistical base and are received by the division transportation officer through the teletypewriter located in the support command command post. A separate REPSHIP is transmitted for each aircraft departing from the logistical base for the division area and contains the following items of information: Supply request number, type and quantity of supplies aboard each aircraft, tail number of the aircraft, and departure time. The supply request number and type of supplies aboard each aircraft are identified by established codes. Tail number of the aircraft and departure time are transmitted in the clear. The codes used minimize the amount of traffic over the communications net. The coded supply request number indicates the delivery area, date of the request, and the specific supply request by area (1st brigade area, 2d brigade area, etc.). The code used for supplies indicates not only the class of supply, such as petroleum, oil, and lubricating products (class III), but further defines the category within each class of supply (aviation gasoline, motor gasoline, etc.). All classes of supply except class II and IV, are palletized or containerized and coded accordingly. The palletizing and containerizing of cargo and supplies to the fullest extent possible enables the division to apply the system of throughput distribution to maximum advantage.

CHAPTER 5

COMBAT SUPPORT OPERATIONS

31. General

a. Combat support is operational assistance furnished combat elements by other designated units. Army helicopter units discussed in chapter 3 provide combat support when directed to do so by the appropriate commander. This may be the commander of a field army, a corps, a subordinate unified command, a military assistance command, or an independent force. Airlift operations accomplished by these units when attached to a tactical force are considered to be combat support operations. Normally, the combat forces receive tactical airlift from aviation units that are organic to divisions and corps. It is only when the tactical situation demands additional airlift beyond the capability of the division and corps aviation units that aviation elements of a support command are called upon to provide combat support.

b. Army air transport units may be called upon to provide combat support airlift in the following situations: movement of units engaged in airmobile operations, shifting and relocation of forces within the combat zone, movement of reserves, and movement of units for rear area security and area damage control. The requirement for air transportation to support combat elements may be generated by—

- (1) A need for attaining tactical advantage.
- (2) A need for speed and flexibility.
- (3) Dispersion of units on a nuclear battlefield.
- (4) Inadequate surface routes as a result of enemy or insurgent interdiction or terrain obstacles.
- (5) Advance of tactical units or the isolation of friendly forces beyond the capability of surface transportation.

32. Responsibilities and Relationships

a. When directed by the appropriate commander, air transport units that normally provide sustained airlift to a support command may be employed in combat support operations. The decision to divert either a portion or all of these air transport units for tactical airlift support must be weighed against the effect on the combat service support transportation airlift service that is operated on a continuous basis. During the time that the aviation units are providing combat support, the capability to provide combat service support is reduced in direct proportion to the number of units diverted. It is essential that the aviation units be returned to the control of the support command as soon as practical upon completion of the tactical operation.

b. Requests for tactical airlift are submitted by the combat forces to the appropriate command for approval and fulfillment. Requests originating within a division are coordinated by the division aviation officer and the G3. When division airlift requirements cannot be supported by organic division aviation units, the request is forwarded to the next higher headquarters, usually corps. Requests are submitted to the corps aviation officer for approval by the corps G3. Airlift requests that cannot be supported by either division or corps aviation units are forwarded to army, where they are coordinated by the army aviation officer and submitted to the army G3 for approval. Upon notification from the field army G3 of a commitment to provide combat support airlift, the support commander's aviation officer determines the air transport units most suitable to support the tactical requirement.

c. The combat force that requests tactical airlift is responsible for planning the move-

ment. The air transport unit that is designated to perform the airlift establishes liaison with the supported unit to assist in the movement planning. (See appendix B for a liaison officer's guide.) Aircraft used in combat support operations are normally provided on a mission basis, with the aviation unit integrity maintained as much as possible. The relationship between the air transport commander and the combat force commander depends upon the mission assignment status of the aviation unit. Aviation units are attached to, under the operational control of, or in support of the combat force. Refer to FM 1-15 and FM 57-35 for more detailed information on the relationship between the air transport unit and the combat force.

33. Employment

a. The composition of the air transport force employed in a combat support operation is directly influenced by the magnitude of the tactical airlift requirement. The participation of several air transport companies will require the employment of an aviation battalion to provide command and control of these units.

b. Upon receipt of a combat support mission, air transport company commanders supervise the preparation and dissemination of employment procedures to members of the unit. Employment procedures are developed in conformity with the operational plan prepared by the combat force commander. Air transport commanders, through their subordinate leaders, insure that flight personnel participating in the operation are properly briefed. Proper orientation minimizes confusion, reduces the risk of failure, and enables personnel to adjust rapidly to deviations from the original plan. Instructions to flight crews must be explicit and brief and will include the following:

- (1) Designation of flight leaders and the tactical unit(s) to be supported by each.
- (2) Composition of flight units to include number of aircraft, based upon the combat force commander's plan.
- (3) Location of loading and landing sites.
- (4) Flight routes and alternates.
- (5) En route flight formations, altitude, and flight speed.

- (6) Air traffic control and IFF (identification, friend or foe) procedures.
- (7) Intelligence, to include weather forecast.
- (8) Location of refueling sites and instructions for using these facilities.
- (9) Schedule for movement to the loading zone.

34. Tactical Loading

a. General.

- (1) The mission commander insures that loads are within the capability of the helicopters and that they are properly secured so as not to create a hazard in flight.
- (2) It must be recognized that loading is not always accomplished under ideal, preplanned conditions. Many situations will require loading without preconceived plans and will necessitate that loads be made up on site. The following basic principles apply during combat support operations:
 - (a) Lifted unit loads tactically. All individuals carry only minimum essential combat equipment. Ammunition accompanies each weapon in minimum amounts necessary for mission accomplishment.
 - (b) Aviation units provide a standard number of a particular type of helicopter for a lift of a given type of supported unit. In other words, a medium helicopter company equipped with CH-47 Chinooks will have predetermined plans that establish the number of helicopters needed to airlift a particular type of tactical unit.
 - (c) Key personnel and equipment are distributed throughout several aircraft.
 - (d) Each load is safely balanced and secured.
 - (e) Items of equipment, with all parts and accessories needed to make them operational, are loaded in the same aircraft.
 - (f) Crews accompany crew-served weapons.

b. Sling Loads.

- (1) The unit to be lifted provides all essential equipment and personnel for sling loading, including hookup teams. The air transport unit will provide technical supervision to insure that sling loads are prepared and attached to the aircraft in such a manner as to insure safety of operations. Sling-loaded helicopters are normally located near the rear of formations. In other situations, all helicopters of the formation may pick up sling loads. If simultaneous movement of internal and sling-loaded helicopters is desired, the sling-loaded helicopters hook up and depart prior to the remainder of the formation.
- (2) The following factors favor external loading of supplies and equipment.
 - (a) Short distance hauls.
 - (b) Outsized equipment.
 - (c) Unavailability of helicopter touchdown landing sites.
 - (d) Landing areas subject to hostile fire.
- (3) A sling load signalman is responsible for guiding the helicopter, by hand and arm signals, to a point over the load which will permit hookup. After hookup, he is responsible to signal the pilot to gently lift the load a few inches off the ground to determine if it is secure and, if it is, to signal the pilot that he is clear for takeoff. The signalman's position, as viewed from the helicopter, is 30 to 50 meters in front and to the right of the load.
- (4) A hookup man moves to the load when the helicopter is over it. He gives the signalman appropriate hand and arm signals to reposition the aircraft, if required, to make the hookup.
- (5) The helicopter crew chief or flight engineer takes up a position inside the helicopter where he can observe the load and provide the pilot, through the aircraft communications system, with maneuvering instructions.

35. Communications

a. General.

- (1) It is a major consideration of Army air transport units who normally perform combat service support operations to insure that adequate communications are established with the tactical forces involved in a particular combat support operation, such as other aviation units, supported combat forces, and higher headquarters. There is no intent in this paragraph to establish hard and fast rules or procedures but rather to provide general communication guidance for support command air transport units when attached to a tactical force.
- (2) Radio is the primary means of communication during tactical airlift operations. Wire and courier will be used if time and the specific tactical situation warrant.

b. Radio Nets.

- (1) *Aviation brigade or group FM command/operations net.* When an aviation battalion headquarters, together with air transport units, is attached to an aviation brigade or an aviation group for command and control, it will join an FM net that is established for communication between the senior headquarters and the aviation battalions. The brigade or group FM net will be the primary means of voice communication to the battalion and normally will be operated on a 24-hour basis. The brigade or group may also establish a high frequency command net as a secondary means of radio communications to the battalion. This net has the capability of providing voice, continuous wave, and radio-teletypewriter communication.
- (2) *Aviation battalion FM command/operations net.* The battalion FM net is the primary means of radio communication within the battalion and its subordinate air transport companies. The battalion may also provide a high frequency net as a second-

means of radio communications and when distance precludes communications by FM. The high frequency net provides voice and continuous wave capabilities from the battalion to the companies.

- (3) *Aviation company nets.* Use of company radio nets depends on the unit's communication capabilities, local SOP's, and the mission. In the absence of other guidance, the following is recommended:
 - (a) All aircraft and ground stations will monitor company FM. This is the primary means of ground-to-air communications and is the common command net for the company during an operation.
 - (b) Air transport aircraft utilize pre-selected radio frequencies for air-to-air communication.
 - (c) The company commander will normally operate in three FM nets. They are the battalion command/operations net, the company command net, and the supported unit's command net.

36. Types of Operations

Army air transport units may participate in various types of operations identified within such broad categories as offensive, defensive, retrograde, and special operations. Army air transport units also participate in internal defense operations in support of US-HC (United States-host country) forces.

a. Offensive Operations.

- (1) *Movement to contact.* Movement to contact is conducted preliminary to combat to place troops in position to close with the enemy. Army air transport units can provide necessary airlift to move combat forces over broad areas in the minimum of time and into positions that will assist the commander in obtaining a tactical advantage.
- (2) *Meeting Engagement.* Tactical operations in undeveloped areas, in an insurgency operational environment, and in locations where combat forces are widely dispersed are particularly vulnerable to meeting engagements. Such an engagement is a combat action that occurs when a moving force, incompletely deployed for battle, engages an enemy force unexpectedly. The ability of the combat commander to airlift necessary troops and equipment rapidly into a favorable tactical position provides him with a distinct advantage.
- (3) *Vertical envelopment.* In a vertical envelopment, the forces are airlifted into positions that permit an attack to the rear and flanks of the enemy with the intent of cutting off or encircling the opposing position. Vertical envelopment is desirable when attacking an organized enemy position that ground combat forces might find difficult to destroy by frontal assault. This type of maneuver permits the combat force commander to engage an enemy with troops that are still fresh and strong. It also provides the combat commander with the added effect of surprise and shock action.
- (4) *Penetration.* Penetration seeks to break through the enemy's defensive position, to widen the gap created, and to destroy the continuity of his position. The divided enemy forces are then destroyed and mobile forces exploit the enemy rear positions. Air transport units can provide the airlift for the combat forces conducting operations to seize limited objectives, to seal off approach routes of enemy reserves, and to seize critical terrain on the flanks of the penetration.
- (5) *Infiltration and Exfiltration.* Infiltration is the movement of small groups or individuals into an area at extended or irregular intervals. When used in connection with the enemy, it implies that contact is avoided. Exfiltration is the removal of personnel or units from areas under enemy control by stealth, deception, surprise, or clandestine means. Air transport units may be employed to support this

type of operation by airlifting part or all of the participating force or by airdropping supplies and equipment.

- (6) *Exploitation and pursuit.* Exploitation is a phase of offensive action that usually follows a successful penetration or envelopment. It is characterized by rapid advances against lessening resistance. Pursuit is an offensive action against a retreating enemy force. It may consist entirely of direct pressure, or it may be a combination of direct pressure and encircling movements. Air transport units may be used in exploitation and pursuit roles to airlift supplies that are rapidly consumed; to provide aerial movement of troops and equipment to key positions on the enemy's flank or rear; and to provide airlift to seize objectives in the enemy rear, cut lines of communication, block escape routes, and destroy an enemy rear guard.

b. Defensive Operations.

- (1) *Mobile defense.* Mobile defense relies on maneuver of combat forces with the retention of organization and firepower in an effort to seize the initiative from the enemy. In this type of operation, most of the defending force is held as a striking force, with the remainder manning the forward defense positions. The defender seeks to engage the enemy in decisive action at a time and place of the defender's choosing. The employment of Army air transport in a mobile defense provides the combat force commander with a tactical advantage. Airlifted troops enable the commander to shift forces at his choice of time and to positions that provide the most suitable area for engagement.
- (2) *Position defense.* In position defense, the defending forces are disposed in selected combat tactical areas. Principal reliance is placed on the ability of the combat forces in the defended areas to maintain their position and to control the terrain. Army air

transport units may be called upon to support the combat forces in much the same manner as in mobile defense. However, a position defense usually requires less support from air transport units than does a mobile defense.

- (3) *Counterattack.* Counterattack is an operation by a part or all of a defending force against an enemy attacking force in order to regain lost ground or to cut off the enemy's advancing units. The availability of air transport units enables the defending combat force commander to rely more heavily on reserve troops located in dispersed areas and to cover more enemy avenues of approach.

c. Retrograde Operations. A retrograde operation is a movement of a force to the rear or away from the enemy. A retrograde movement may be forced by the enemy, or it may be made voluntarily. Such movement may be classified as a withdrawal, a retirement, or a delaying action.

- (1) *Withdrawal.* In a withdrawal, all or part of a deployed force disengages from the enemy. Air transport units can be used to speed up a withdrawal, giving the withdrawing units more time to organize their rearward positions. Air transport also make it easier to extricate covering forces.
- (2) *Retirement.* A retirement is an orderly withdrawal without pressure from the enemy. The use of air transport in this type of operation permits the movement of retiring forces to the rear to gain distance from the enemy.
- (3) *Delaying action.* Delaying actions are used when space is traded for time and maximum punishment is inflicted upon the enemy without being decisively involved in combat. Airlifted combat forces can take maximum advantage of delaying positions because they are not dependent upon adjacent road nets for maneuverability and escape.

d. Special Operations

- (1) *Amphibious.* An amphibious operation

is an attack launched from the sea involving a landing on a hostile shore. Army air transport units may be employed in both the assault and the general unloading phases of the ship-to-shore movement, as well as within the beachhead. Refer to FM 31-11 and FM 31-12 for details of amphibious operations and the employment of Army air transport.

- (2) *Chemical, biological, and radiological (CBR).* Army air transport units afford the ground commander the increased mobility and flexibility needed to conduct CBR operations. CBR materiel needed for such operations include weapons, devices, and agents, plus protective equipment. Army air transport units may be called upon to provide the following type of support:
 - (a) Transport of CBR materiel from dispersed supply points to combat forces for immediate employment.
 - (b) Air movement of combat forces as a part of a CBR operation.
 - (c) Airlift of protective equipment to critical areas.
 - (d) Evacuation of forces from contaminated areas.
 - (e) Conduct of CBR aerial surveys.

e. Internal Defense Operations. Internal defense is the full range of measures taken by a government and its allies to free and protect its society from subversion, lawlessness, and insurgency. Internal defense operations are conducted directly against armed insurgents and their underground organization, support system, external sanctuary, or outside supporting power. Army air transport units may be called on to participate in such operations by providing airlift of personnel and cargo and also to support other tasks associated with internal defense. Internal defense operations include airlift of US-HC forces, equipment, and cargo; internal security; military civic action; advisory assistance; intelligence operations and psychological operations. Additional discussion of internal defense operations is in FM 31-16 and FM 31-22.

- (1) *Airlift of US-HC forces, equipment, and cargo.* The major task of Army

air transport units in supporting internal defense operations is to provide prompt airlift of US-HC forces throughout the area of operations and to insure continuous resupply of these forces. The nature of insurgent forces and their tactical capabilities, including guerrilla and more sophisticated forms of warfare, coupled with poor road nets and rugged terrain, which are characteristic of insurgency operational environments, create mobility disadvantages for standard armed forces and place great reliance on movement by Army air transport. Some typical missions may include airlifting personnel and cargo from ship to shore in areas lacking adequate harbor facilities or beaches, airlifting artillery or vehicles in support of ground or airmobile forces, and airlifting reserve forces to reinforce engaged troops or to block avenues of escape.

- (2) *Internal security.* Army air transport units may support US-HC military forces and civilian agencies to maintain law and order and to control the movement of material and resources. Operations may include airlifting police and security forces on raids, cordon and search, and border security into remote areas. Transport helicopters may be used during resettlement operations to airlift villages and refugee groups with their belongings to village complexes and designated secure areas.
- (3) *Military civic action.* Army air transport units may be utilized in support of military civic action programs by providing airlift of personnel and cargo into remote areas. Such operations may include air movement of construction equipment and building supplies, transporting civic action specialist teams (for example, medical, engineer, agricultural), providing air movement of disaster relief emergency support, and airlifting survey and mapping parties.

- (4) *Advisory assistance.* Individuals or elements of Army air transport units may be employed to train and advise HC personnel. Advisory assistance teams may conduct schools and training centers to develop the HC capability for operating their own aircraft and accomplishing air transport operations. Air transport units transport and supply mobile training teams and civilian specialist teams providing advisory assistance in isolated areas.
- (5) *Intelligence operations.* Air crews provide one of the most valuable sources of intelligence data. Participation in airlift operations provides the crews with the opportunity of be-

coming intimately familiar with vast areas and the activities taking place within them, and changes in activity and/or terrain itself become recognizable. Unit intelligence officers maintain up-to-date intelligence situation maps depicting areas of insurgent activity, antiaircraft fire, landing zones, safe areas, and evasion and escape routes.

- (6) *Psychological operations.* Army air transport units may provide air movement for psychological operations personnel and equipment into remote or isolated areas. Examples of such support would be the airlift of radio vans, printing facilities, audio-visual units, and entertainment teams.

CHAPTER 6

TRAINING

37. Responsibilities

a. General. The purpose of the Army training program is to develop and maintain a state of proficiency in both individuals and units that will insure the successful accomplishment of assigned missions. Training is accomplished on an individual, group, or unit basis. It may consist of training in service schools or unit schools or on-the-job training. Training is a continuous process that must be conducted in such a manner that the efficiency of the unit when performing its normal operations will not be materially interrupted.

b. Aviation Battalion Commander. The aviation battalion commander is responsible for the establishment of training schedules, technical training programs, and units schools for subordinate air transport units. The aviation battalion actively supervises the training of all subordinate units. The battalion headquarters effects the necessary planning, coordination, and liaison to provide combined training exercises among air transport units, tactical forces, and other support type units.

c. Air Transport Unit Commanders. Unit commanders are responsible for the training in their organizations. Air transport company commanders implement training programs established by higher headquarters. The company commander, or his delegated representative, selects personnel to fill schools quotas, selects instructor personnel, and supervises training conducted within the unit. Continuous observation of training is necessary to evaluate how well training objectives are being accomplished.

38. Training Publications

a. Army training programs (ATP's) are documents published by the Department of the Army that provide guidance in the preparation

of training programs and schedules for specific Army units. ATP's prescribe a general subject outline of training to be conducted by operational units and outline the minimum essential training required. ATP's also prescribe the subject, number of hours to be devoted to each subject, and essential study references and training aids which apply to the training of specific units.

b. Army subject schedules (ASubjSed's) are used to provide detailed guidance to instructors in preparation of lesson plans and scheduling of periods of instruction for training in a particular subject as outlined in ATP's. There are two types of subject schedules: unit subject schedules for unit training and military occupational speciality (MOS) subject schedules for training in specific individual skills.

c. Army training tests (ATT's) are used to evaluate the ability of units, both tactically and technically. Test scores determine whether the unit is sufficiently trained to accomplish its assigned mission and whether the individuals of the unit are MOS-qualified and are utilized correctly.

d. FM 21-5 and FM 21-6 contain basic guidance for Army training. Other military publications available for training purposes are listed in DA Pam 310-3.

39. Individual Training

a. Officers and Warrant Officers.

- (1) Army air transport units contain a greater proportion of officers and warrant officers than nonaviation units. In addition to being rated aviators, aviation officers must be equally proficient as ground officers. Therefore, aviators assigned to air transport units require training in both ground and aviation tactics. This enables

Army aviators to understand the mission of the supported units and to be more efficient in providing required support.

- (2) Even though the Army aviator in an air transport unit is primarily assigned to flying duty, he should be kept current on new tactics and techniques in order to continuously improve his flying ability. This may be accomplished through the unit's training program. Extensive training is necessary to keep the aviator proficient in both tactical and nontactical flying. Training must include instruction in the latest flight regulations and ground subjects, with cross training in all functions of the unit to which assigned.
- (3) Aviation training of officers also applies to warrant officers. They should be trained with, and observe the tactics and techniques of, the ground units that will be supported.

b. Enlisted.

- (1) *General.* Basic combat training for enlisted men is contained in ATP 21-114. The objective of basic combat training is to produce a physically conditioned soldier indoctrinated and drilled in the fundamentals of soldiering and familiar with basic military tactics. This training is important in aviation units, but the individual must also become a specialist in his MOS in order to perform his assigned duties. He must receive on-the-job training to develop his MOS proficiency, and he must maintain his basic soldiering ability.
- (2) *Specialist MOS training.* The training of enlisted specialists, particularly in communications, vehicle and aircraft maintenance, avionics, and air traffic control, is one of the air transport commanders' most important training responsibilities. Specialist training, the foundation of which is laid during the advanced individual phase of the enlisted man's training must be carefully planned and super-

vised. Specialist training is received at service schools and unit schools and through on-the-job training.

40. Unit Training

a. Unit training is that phase of the training program in which emphasis is placed on training personnel to function as members of a team or unit. During this training period, the unit usually spends much time in the field operating under conditions most likely to be encountered in combat. Unit training enables the Army air transport commander to evaluate the degree of proficiency of his unit in performing assigned tasks. Stress is placed on leadership, unit integrity, teamwork, operational competence, administrative efficiency, morale, and supply economy. Unit training consists of a basic unit training phase and an advanced unit training phase.

- (1) *Basic unit training phase.* The objective of the basic unit training phase is to develop effective and coordinated sections and teams from individuals who have learned particular skills and techniques during the individual training phase. The individual skills and techniques are progressively developed to suit the requirements of the subordinate elements, with the view of producing an efficiently functioning unit.
- (2) *Advanced unit training phase.* The advanced unit training phase is designed to implement training previously received and to mold the subordinate elements of the unit into a smoothly functioning unit. The maximum possible unit training time should be spent in bivouacs conducted under simulated tactical situations. Particular attention should be given to operational competence, dispersion of elements, concealment, local security and defense, and CBR protective measures.

b. Bivouac operations during unit training provide the best opportunity to improve both individual and unit proficiency towards the accomplishment of the unit's mission. Army air transport units will insure that sufficient training is scheduled to adequately develop the com-

petence of individuals and elements when performing combat support and combat service support airlift operations. During operations under simulated tactical conditions, the capabilities and limitations of the unit are clearly disclosed. Any additional training necessary to prepare the unit for combined training or for participation in maneuvers is determined at that time.

41. Combined Airlift Training

a. It is most desirable to schedule combined airlift training among Army air transport units, terminal transfer elements, and supported forces. Supported forces can be either tactical units or service troops. Combined training promotes maximum understanding and coordination among the various units when engaged in combat support or combat service support airlift operations. The aviation battalion provides the planning, coordination, and

supervision necessary for the successful implementation of combined airlift training programs.

b. The following subjects should be included in the instructions given to personnel that participate in combined airlift training:

- (1) Conduct of combat support and combat service support airlift operations.
- (2) Indoctrination in psychological problems inherent to air transportation.
- (3) Preparation of aircraft loading plans.
- (4) Familiarization with loading, restraining, and unloading cargo.
- (5) Familiarization with tiedown devices and with methods of shoring cargo.
- (6) Manifesting and documenting aircraft loads.
- (7) Assembly techniques.
- (8) Safety.

APPENDIX A

REFERENCES

1. Army Regulations

AR 37-16	Accounting and Reporting for Operation, Maintenance, and Flying Hours of Army Aircraft.
AR 55-10	Military Standard Transportation and Movement Procedure (MIL-STAMP).
AR 59-series	Air Transportation.
AR 95-series	Aviation.
AR 96-series	Air Transportation.
AR 320-5	Dictionary of United States Army Terms.
AR 320-50	Authorized Abbreviations and Brevity Codes.
AR 350-1	Army Training.
AR 385-10	Army Safety Program.
AR 385-40	Accident Reporting and Records.
AR 600-105	Army Aviation Officer Career Program.
AR 600-106	Aeronautical Designations and Flying Status for Army Personnel.
AR 600-107	Suspensions, Flying Evaluation Boards, and Flight Status Selection System.
AR 700-26	Designating, Redesignating, and Naming Military Aircraft.
AR 750-1	Maintenance Concepts.
AR 750-8	Command Maintenance Management Inspections.

2. Field Manuals

FM 1-5	Aviation Company.
FM 1-10	Army Aviation Organizational Aircraft Maintenance.
FM 1-15	Aviation Battalion.
FM 1-60	Army Aviation Air Traffic Operations—Tactical.
FM 1-100	Army Aviation.
FM 1-105	Army Aviation Techniques and Procedures.
FM 1-110	Armed Helicopter Employment.
FM 7-20	Infantry, Airborne Infantry, and Mechanized Infantry Battalions.
FM 8-35	Transportation of the Sick and Wounded.
FM 11-21	Tactical Signal Communication Systems, Army, Corps, and Division.
FM 21-5	Military Training Management.
FM 21-6	Techniques of Military Instruction.
FM 21-26	Map Reading.
FM 21-30	Military Symbols.
FM 21-31	Topographic Symbols.
FM 23-65	Browning Machine Gun, Caliber .50 HB, M2
FM 31-11	Doctrine for Amphibious Operations.
FM 31-12	Army Forces in Amphibious Operations (the Army Landing Force).
FM 31-16	Counter guerrilla Operations.

FM 31-22	US Army Counterinsurgency Forces.
FM 31-25	Desert Operations.
FM 31-30	Jungle Training and Operations.
FM 31-70	Basic Cold Weather Manual.
FM 31-71	Northern Operations.
FM 31-72	Mountain Operations.
FM 54-1	The Logistical Command.
FM 54-2	The Division Support Command.
FM 55-4-1 (Test)	Transportation Movements in a Theater of Operations
FM 55-6-1 (Test)	Transportation Services in a Theater of Operations.
FM 55-15	Transportation Reference Data.
FM 55-45	Aircraft Maintenance Services and Units in the Field Army.
FM 55-55-1 (Test)	Transportation Terminal Operations.
FM 57-10	Army Forces in Joint Airborne Operations.
FM 57-35	Airmobile Operations.
FM 100-5	Field Service Regulations—Operations.
FM 100-10	Field Service Regulations—Administration.
(C) FM 100-20	Field Service Regulations—Counterinsurgency (U).
FM 100-27	U.S. Army Airforce Doctrine for Tactical Airlift Operations.
FM 101-5	Staff Officer's Field Manual; Staff Organization and Procedure.
FM 101-10-1	Staff Officer's Field Manual; Organizational, Technical, and Logistical Data, Unclassified.
(C) FM 101-20	United States Army Aviation Planning Manual (U).

3. Technical Manuals

TM 1-series	Aviation.
TM 5-330	Planning, Site Selection, and Design of Roads, Airfields, and Heliports in the Theater of Operations.
TM 38-250	Packaging and Handling of Dangerous Materials for Transportation by Military Aircraft.
TM 38-750	Army Equipment Record Procedures.
TM 38-750-1	Maintenance Management: Field Command Procedures.
TM 55-series	Transportation (Aviation and Air Transportability TM's).
TM 57-210	Air Movement of Troops and Equipment.

4. Technical Bulletins

AVN-series	Aviation.
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5. Army Training Programs

ATP 20-5	Army Training Program for Field Exercises and Maneuvers.
ATP 21-114	Male Military Personnel Without Prior Service.

6. Department of Army Pamphlets

DA PAM 310-series	Military Publication Indexes.
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7. Tables of Organization and Equipment

TOE 1-207	Aviation Air Traffic Control Company.
TOE 1-252	Headquarters and Headquarters Company, Aviation Group.
TOE 1-256	Headquarters and Headquarters Company, Aviation Battalion.
TOE 1-258	Aviation Medium Helicopter Company.

TOE 1-259	Aviation Heavy Helicopter Company.
TOE 1-407	Aviation Service Support Company.
TOE 8-500	Medical Service Organization.
TOE 29-500	Composite Service Organization.
TOE 55-118	Transportation Terminal Transfer Company.

8. Forms

DD Form 1384	Transportation Control and Movement Document.
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9. JCS Publications

JCS Pub 2	Unified Aviation Armed Forces (UNAAF).
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APPENDIX B

LIAISON OFFICER'S GUIDE

1. General

When an Army air transport unit is assigned an airlift mission, the commander will promptly establish liaison with the supported unit. Liaison is essential to insure proper planning between the participating units.

2. Planning Guide

The following liaison officer's guide is provided to assist in coordinating and executing successful airlift missions. However, the guide can only provide a representative listing of applicable factors. It must be recognized that each mission presents individual problems that require coordination and solving before the actual operation.

- a. Supported unit.
- b. Contact officer (supported unit liaison officer).
 - (1) Location.
 - (2) Time to be contacted.
- c. Type of mission (troop movement, cargo airlift, unit airlift).
 - (1) Ground tactical plan of supported unit.
 - (2) Intelligence.
 - (a) Enemy (ground and air).
 - (b) Friendly (ground and air).
 - (3) Strong points (antiaircraft, troops, armor).
- e. Determination of aircraft requirements (type, composition of force).
- f. Plan of execution.
 - (1) Time.
 - (2) Suggested flight routes.
 - (3) Flight altitude to be flown.
 - (4) Departure points, checkpoints, and release points.
 - (5) Communications for flight control.
- (6) Coordination with supporting elements (weather forecaster, friendly fire support, traffic regulation, terminal forces).
- g. Loading area.
 - (1) Coordinates.
 - (2) Description.
 - (3) Marking loading areas.
 - (4) Ground control frequencies and call signs.
 - (5) Officer in charge.
 - (6) Loading plan.
 - (a) General plan.
 - (b) Time of loading.
 - (c) Priorities.
 - (d) Aircraft chalking and marking procedures.
 - (e) Traffic pattern.
 - (f) Manifesting and documentation procedures and responsibility for preparation.
 - (g) Personnel and cargo properly positioned and secured in aircraft.
 - (h) Safety factors involved.
- h. Landing area.
 - (1) Coordinates.
 - (2) Description.
 - (3) Marking landing sites.
 - (4) Ground control frequencies and call signs.
 - (5) Traffic pattern.
 - (6) Unloading plan.
 - (a) Unloading procedures.
 - (b) Time of unloading.
 - (c) Safety precautions.
- i. Refueling facilities.
 - (1) Location.
 - (2) Capabilities, requirements, and procedures.

- j.* Alternate plan to cover:
- (1) Weather abort.
 - (2) Mechanical abort.
 - (3) Loss of communication.
 - (4) Enemy action.
 - (5) Alternate flight routes.

(6) Spare aircraft allocated and procedures for employment.

k. Arrangement for up-to-date weather information and briefing.

l. Mission debriefing.

m. Rehearsals and training procedures.

APPENDIX C

DETERMINING AIRCRAFT REQUIREMENTS

1. General

a. To determine the number of aircraft required for a mission, the types and characteristics of available aircraft must be considered in relation to the following:

- (1) Cargo carrying characteristics—
 - (a) Size and location of cargo door and height above ground.
 - (b) Size and shape of cargo compartment and limiting features.
 - (c) Floor strength and location and strength of tiedown fittings.
 - (d) Location and number of troop seats.
 - (e) Forward and aft center of gravity.
- (2) Allowable cargo load. The weight in pounds of personnel and cargo that an aircraft can airlift for a specific mission (allowable cargo load) is provided by the air transport commander based on technical considerations.
- (3) Weight and dimensions of commodity to be airlifted.

b. For Army combat support and combat service support airlift, the standard weights for individuals are as shown below. These weights take into consideration the weight of the man, plus his combat weight and his share of TOE equipment that is hand-carried.

- (1) Aircraft crewman, 200 pounds.
- (2) Combat-equipped soldier, 240 pounds.
- (3) Litter patient, 250 pounds.

c. The size and shape of individual items of cargo are particularly important when Army transport aircraft are providing the airlift. The interior cabin space of these aircraft is limited in comparison to the larger transport aircraft operated by the Air Force. Items of cargo whose dimensions exceed the interior cabin space may be airlifted externally by Army transport helicopters.

d. Considering the above factors, aircraft requirements can be determined by the weight or type load method.

2. Weight Method

The weight method is used for estimating aircraft requirements to transport large amounts of supplies, general cargo, and personnel. This method is based on the assumption that total weight is the determining factor. The weight method is not accurate for unit movements that necessitate maintaining unit integrity and airlifting major items of equipment. A sample application of the weight method follows:

Weight to be transported, 79,000 pounds.
Allowable cargo load per aircraft, 11,000 pounds.

$$\frac{79,000}{11,000} = 7.18 \text{ or } 8 \text{ aircraft required.}$$

3. Type Load Method

a. The type load method is based on arranging combination loads of men, equipment, and cargo within the allowable cargo load limit of the aircraft. This method is particularly useful for airlifting small units or elements with their equipment and maintaining unit integrity. Listed below are four sample type loads—

Type 1: 2¼-ton trucks
3 men

Type 2: 1¼-ton truck
1¼-ton trailer (loaded)
4 men

Type 3: 1¼-ton truck
2¼-ton trailers
9 men

Type 4: 1¼-ton truck
1 106-mm rifle (truck-mounted)
2 rounds of 106-mm ammunition
10 men

b. Normally, each aircraft transporting a type load is identified by a chalk number marked on the fuselage. The aircraft then become identified as chalk number 1, 2, etc. This permits the personnel who are to be airlifted to more easily identify the aircraft assigned a particular type load.

APPENDIX D

ARMY-AIR FORCE AGREEMENT OF 6 APRIL 1966

"The Chief of Staff, United States Army, and the Chief of Staff, United States Air Force, have reached an understanding on the control and employment of certain types of fixed and rotary wing aircraft and are individually and jointly agreed as follows:

"A. The Chief of Staff, US Army, agrees to relinquish all claims for CV-2 and CV-7 aircraft and for future fixed wing aircraft designed for tactical airlift. These assets now in the Army inventory will be transferred to the Air Force. (Chief of Staff, Army, and Chief of Staff, Air Force, agree that this does not apply to administrative mission support fixed wing aircraft.)

"B. The Chief of Staff, US Air Force, agrees:

"(1) To relinquish all claims for helicopters and follow-on rotary wing aircraft which are designed and operated for intra-theater movement, fire support, supply, and resupply of Army forces and those Air Force control elements assigned to DASC and subordinate thereto. (Chief of Staff, Army, and Chief of Staff, Air Force, agree that this does not include rotary wing aircraft employed by Air Force SAW or SAR forces and rotary wing administrative mission support aircraft.) (Chief of Staff, Army, and Chief of Staff, Air Force, agree that the Army and Air Force jointly will continue to develop VTOL aircraft. Dependent upon evolution of this type aircraft, methods of employment and control will be matters for continuing joint consideration by the Army and Air Force.)

"(2) That, in cases of operational need, the CV-2, CV-7, and C-123 type aircraft performing supply, resupply, or troop-lift functions in the field army area, may be attached to the subordinate tactical echelons of the field army (corps, division, or subordinate commander), as determined by the appropriate joint/unified commander. (Note: Authority for attachment is established by subsection 6, Sec. 2 of JCS Pub 2, Unified Action Armed Forces (UNAAF).)

"(3) To retain the CV-2 and CV-7 aircraft in the Air Force structure and to consult with the Chief of Staff, US Army, prior to changing the force level of, or replacing, these aircraft.

"(4) To consult with the Chief of Staff, US Army in order to arrive at takeoff, landing, and load carrying characteristics on follow-on fixed wing aircraft to meet the needs of the Army for supply, resupply, and troop movement functions.

"C. The Chief of Staff, US Army, and the Chief of Staff, US Air Force, jointly agree:

"(1) To revise all service doctrinal statements, manuals, and other material in variance with the substance and spirit of this agreement.

"(2) That the necessary actions resulting from this agreement be completed by 1 January 1967."

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

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